Devonshire Gardens

Cambridge, CB1 2BJ

A development by

RAILPEN & SOCIUS

Report title: Sustainability statement

Date: 22 April 2022

One Planet Living® | A framework by Bioregional

Contents

This Sustainability Statement has been prepared by Bioregional Development Group, a sustainability charity with headquarters at BedZED in South London. Bioregional has nearly 25 years' experience advising on sustainable development across the world.

Devonshire Gardens is a proposal by RPMI Railpen and Socius. The Applicant is RPMI Railpen, which also intends to retain and operate (via a management company) the asset in the long term when built. Bioregional has been appointed by Socius.

This Sustainability Statement has been produced for the proposed development at Devonshire Gardens, as a planning document.

Bioregional uses the One Planet Living framework and its ten principles to develop and communicate the sustainability objectives of development proposals, and measures proposed by the design and operational teams to meet these objectives. This development scheme is using the framework in the design and planning process to strengthen its sustainability ambitions. It has not been endorsed or assessed through Bioregional's One Planet Living 'leadership recognition' process, but intends to pursue this at a later date.

1.2 Bioregional and One Planet Living®

Bioregional champions One Planet Living, which is a vision of the world where people live happy, healthy lifestyles within a fair share of the earth's resources.

One Planet Living is rooted in the metrics of ecological footprinting. Ecological footprinting measures the consumption of natural resources that is required to meet humanity's demands for goods and services and to absorb wastes and pollution, expressed in global hectares (gha) of land and sea.

Humanity's collective global footprint now exceeds the world's capacity to annually regenerate resources, by about 75%. If our demands on the planet continue at today's rate, by 2030 we will need the equivalent of two planets to maintain our lifestyles. If everyone in the world lived the same lifestyle as the average European, we would need three planets to support us.

In 2003, Bioregional and WWF developed the concept and framework of One Planet Living. One Planet Living is a set of 10 principles which can be used to plan, deliver and manage development that is sustainable according to the environmental limits of the planet and offers a good quality of life. The ten principles are designed to be accessible, user-friendly, and adaptable for application at a variety of different levels and across different sectors.

One Planet Living has been applied to roughly $30 billion of development across the world. Bioregional has created Goals and Guidance for One Planet Communities, which gives advice to developers looking to deliver schemes which enable residents to live One Planet lifestyles. The Goals and Guidance cover the design, construction and operation/management of development.

Bioregional maintains a network of One Planet Communities, developments which have successfully applied the Goals and Guidance, adopted the principles of One Planet Living, and published an action plan which has been peer reviewed and found to be a leader in its field or region.

One Planet Communities aim to enable residents to live within a fair share of the earth's resources which as of the most recent data is 1.58 productive global hectares per capita.

Figure 1.0 to the right outlines the overall goals of One Planet Communities, principle by principle. However, it is worth noting that there is no one set way to deliver a One Planet Community. The Goals and Guidance of One Planet Communities encourage development teams to set sustainability objectives which are bespoke to the scheme's location and context. These objectives arise from an evaluation of local ecological footprints and a thorough examination of environmental, social and economic needs at local, regional and global levels.

Health & happiness	Encourage active, social, meaningful lives to promote good health and wellbeing
Equity & local economy	Creating safe, equitable places to live and work which support local prosperity and international fair trade
Culture & community	Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living
Land & nature	Protecting and restoring land for the benefit of people and wildlife
Sustainable Water	Using water efficiently, protecting local water resources and reducing flooding and drought
Local & sustainable food	Promoting sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein
Travel & transport	Reducing the need to travel, encouraging walking, cycling and low carbon transport
Materials & products	Using materials from sustainable sources and promoting products which help people reduce consumption
Zero waste	Reducing consumption, re-using and recycling to achieve zero waste and zero pollution
Zero carbon energy	Making buildings and manufacturing energy efficient and supplying all energy with renewables

1.3 Sustainability statement structure

Tripartite approach

To ensure that this strategy takes all opportunities to maximise environmental and socio-economic sustainability of the scheme, it has been developed using a tripartite approach via:

- a review of national, regional and local planning policies and requirements;
- application of the Goals and Guidance for One Planet Communities;
- a thorough examination of local, regional and global sustainability issues via data ranging from public health and socioeconomic to utilities, local carbon emissions, and ecological footprinting.

Bioregional's process

Our process for developing a sustainability approach has been as follows:

A 'needs analysis' of social and environmental issues at local, regional and global levels led to the development of key sustainability objectives for the development, covering each of the ten principles of One Planet Living. Local Plan policies are part of the evidence base for the 'needs'.

To fulfil these objectives, specific actions and development features were then devised in collaboration between Bioregional and the design team. These actions are also filed under the most relevant of each of the ten principles, although many of the actions contribute to more than one principle (for example, cycling actions contribute to both health and transport).

Sustainability statement structure

The structure of the Statement is as follows:

Chapter 1 has provided an introduction to the this Statement and One Planet Living.

Chapter 2 introduces the site and proposed development outline.

Chapter 3 sets out the relevant national and local policy considerations.

Chapter 4 summarises the results of the needs analysis under each principle of One Planet Living that was performed to inform the design.

Chapters 5 outlines the proposed sustainability objectives and features of the scheme, filed by each principle of One Planet Living and responding to the identified needs, policies and objectives.

Appendix 1 replicates the full Cambridge SPD Checklist (Sustainable Design and Construction SPD), summarises the development's fulfilment of each item, and the page reference where this is explained in more detail. The checklist codes are also referenced throughout Chapter 5.

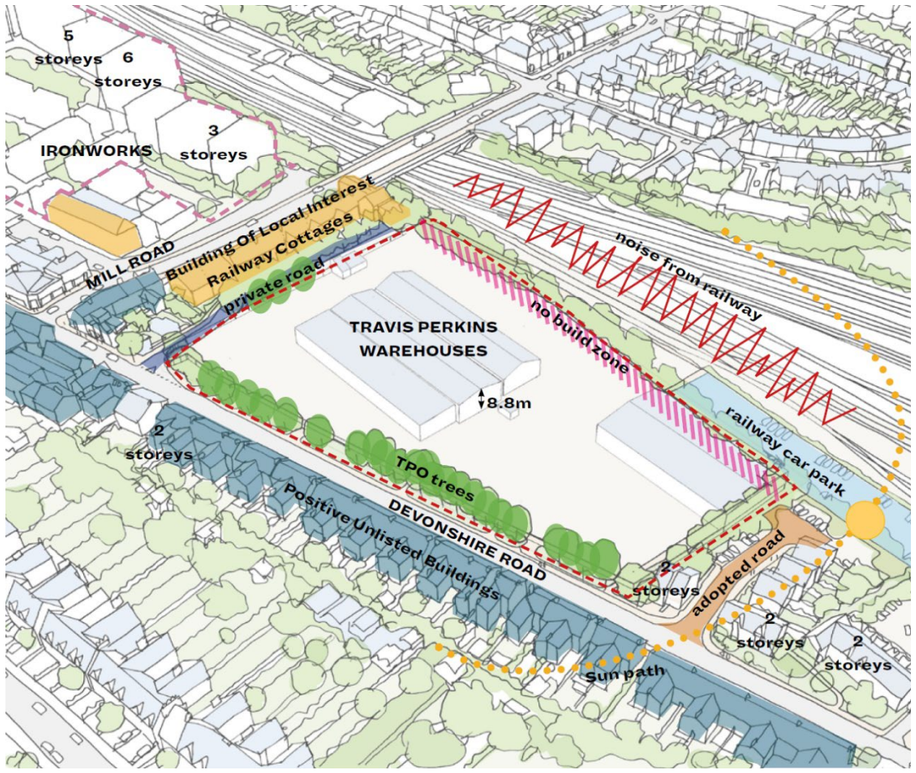
2.1 The site and its context

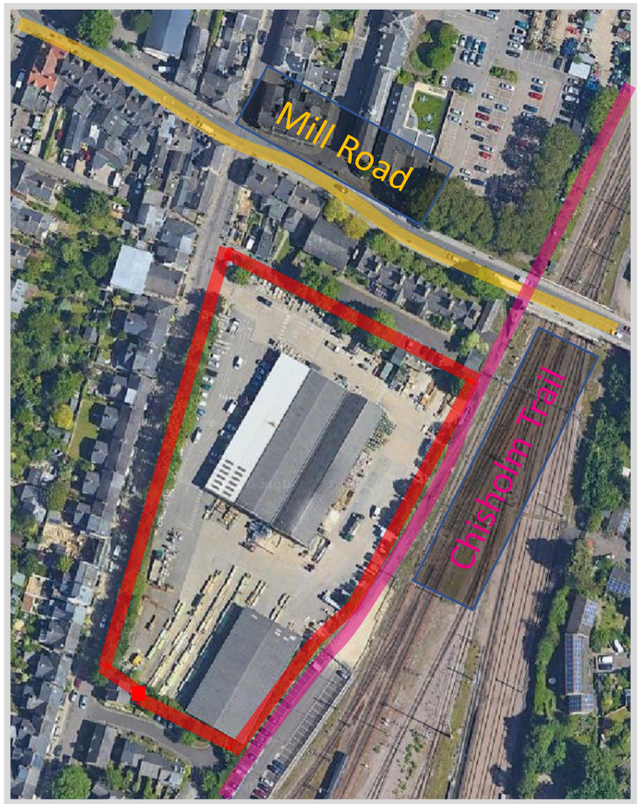
The site is located in urban Cambridge, between the historic centre and the railway station, adjacent to the railway line (**approximate** boundary shown in graphic to right). This is Site R9 in the Local Plan Policies Map. Since at least the 1980s-90s, the site has been used for retail /warehousing, most recently by Travis Perkins. Prior to that, it had been developed in the mid or late 1800s as railway sidings and associated industrial buildings, and is thought to have previously been in agricultural use. The site is within a 1-minute walk of Mill Road with its shops and bus stops, a 6-minute walk from the railway station, and is adjacent to the proposed Chisholm Trail cycle route.

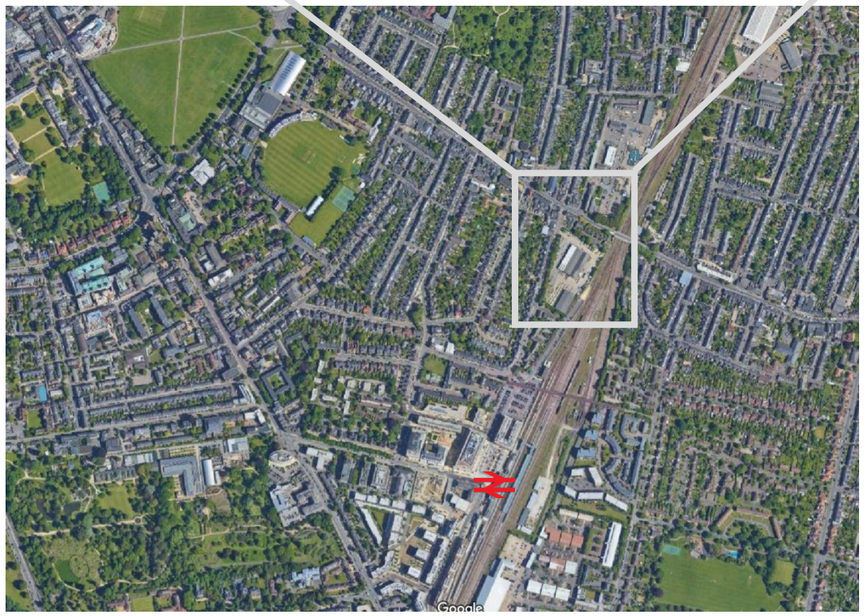
The site comprises 1.23 hectares and currently accommodates two warehouses surrounded by hardstanding used for parking, outdoor storage, and vehicle circulation. Along the edges of the site are hedges including some mature trees, planted at the time of the warehouse construction as a visual screen. At present the site has only one entrance/exit (primarily for vehicles,) and is not permeable to any mode. The existing site and its current and emerging context are shown in the sketch below.

The proposed scheme would remove the warehouses and much of the hardstanding, and redevelop the site as a mixed-use community comprising residential, commercial and community uses plus a generous proportion of public green space and circulation space (including reserving land for the proposed Chisholm trail).

This site is within the administrative boundary Cambridge City Council but within the Greater Cambridge Shared Planning Service. This statement therefore draws on the Cambridge Local Plan (2018-2031) and Greater Cambridge Sustainable Design and Construction Supplementary Planning Document (checklist for Cambridge applications).







2.2 Development vision

The vision for this proposal is to create a sustainable scheme with a balanced mix of uses, making efficient use of brownfield and creating a landscaped park at its heart that will offer a green haven for local people in an area currently deficient in green space.

This will involve demolition of existing depot buildings, and redevelopment to create a series of blocks arranged around a central garden, leaving a 5-metre strip of land along the railway for the proposed Chisholm Trail.

The proposal would create:

- 70 rental homes (studio to 3-bedroom) of which 20% affordable: blocks A, F, G
- 12,754m^2 GIA commercial space (class E, for office use, excl. terraces): blocks B, C and D. This commercial figure includes a dedicated Cycle Hub between blocks B+C.
- Additional cycle parking for residential (mostly indoor) and creche blocks (outdoor).
- 683 m^2 GIA community space (class E.f. creche Block E; class F1/F2 integrated into ground floors of residential blocks A, F+G)
- 6,255 m^2 (approx.) public outdoor open space including hard and soft landscaping
- 320m^2 private residential amenity terraces and 105m^2 private garden to creche
- A ≥5-metre strip of land along the east edge reserved for the proposed Chisholm Trail

The commercial space will be flexible for a variety of different uses so that it can respond to market conditions and neighbourhood needs closer to the time of completion.

A minimum target of BREEAM Excellent is sought for the office spaces (with a score of 76.74%). The final score may prove to reach an Outstanding rating. If 'potential' credits are achieved. This is evidenced in the BREEAM pre-assessment, submitted separately.

For residential units, the Home Quality Mark (4 star) is being pursued, with the potential to achieve 4.5 stars. This is not required for policy compliance but is rather a voluntary demonstration of good design.

Finally, if the development takes suitably ambitious and credible actions towards delivering a good quality of life with a low environmental impact, it may be eligible for One Planet Living leadership recognition. At the time of writing, the project has not yet undergone the peer review process necessary for this, but the intent is to pursue this when detailed design is complete.

3.1 National policy

The National Planning Policy Framework (NPPF)

Published in July 2018 and revised in July 2021, the NPPF sets out the Government's planning policies for England.

> *"At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development"*

The NPPF uses the United Nations General Assembly definition to describe sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs".

The framework also states that there are three dimensions to sustainable development; economic, social and environmental which give rise to the need for the planning system to perform a number of roles:

An economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

A social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being;

An environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The National Planning Policy Framework constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.

Environment Act 2021

The Environment Act was passed in November 2021, which now acts as the UK's new framework of environmental protection. The Act contains legally binding targets in four priority areas:

1. Clean air – including a target for particulate matter, and requiring local authorities to tackle the causes of air quality issues;
2. Waste and recycling – including greater consistency in recycling collections in England, regulations to extend producer responsibility for waste, and power to introduce resource-efficiency standards to make products more easily recyclable, reused/repaired, and last longer;
3. Water – including giving the water regulator more ability to improve the way water and sewerage companies operate to meet demand in a changing climate;
4. Nature – new 'nature recovery strategies' denoting land to be restored or managed for nature, and a required ≥10% biodiversity net gain in all new development.

The Future Homes Standard and uplift to Part L (2021)

Changes to Building Regulations Part L (conservation of fuel and power) are designed to ensure that new homes from 2025 will be 'ready to operate with net zero carbon emissions without the need for costly retrofit' (Prime Minister's 10 point plan for green recovery). 'Ready for net zero without costly retrofit' has not been fully defined by central government, but the CCC report "Housing fit for the future' specifies a 15-20kWh/m^2/year heat demand cap and 'low carbon heating" (heat pumps, networks or biogas). Government has confirmed that the Future Homes Standard Part L 2025 will set new homes' target emission rate ~75% lower than today's regulations, which would rule out gas boilers. The indicative specification includes a heat pump and major uplifts to insulating value of the building fabric versus the current Part L (2013). An interim uplift to Part L (2022) meanwhile lowers the target emission rate ~31% versus today, via solar panels, minor fabric upgrades, and recognising that electricity is now cleaner than gas.

Climate Change Act (2008)

The UK is legally bound to achieve net zero carbon emissions by 2050 (Climate Change Act 2008, 2019 update). This is linked to the UK's international commitment to pull its weight towards limiting global climate change to 'well below 2˚C' (Paris Agreement 2015). This will require major reductions to carbon emissions from both buildings and transport. The extent to which this affects planning decisions is subject to ongoing legal challenge.

3.2 Local policy

Cambridge Local Plan – summary of sustainability requirements

The local plan for Cambridge 2018-2031 sets a vision for a "compact, dynamic city, located within the high quality landscape setting of the Cambridge Green Belt" where new developments will "promote the use of sustainable modes of transport [and] support the transition to a more environmentally sustainable and successful low carbon economy". Policy 28 requires a **sustainability statement** with planning proposals. Supporting text notes that in addition to the sustainable buildings policies, the sustainability statement should also **respond to all principles of other relevant policies on topics such as biodiversity, land, water, noise, air quality, wellbeing, and heritage**.

The Greater Cambridge Sustainable Design and Construction Supplementary Planning Document (adopted in January 2020), details how developers are expected to demonstrate compliance with the sustainable construction policies in the Local Plans of both Cambridge and South Cambridgeshire. It contains a checklist of actions that should or can be taken by development proposals to demonstrate how they have complied with or even exceeded the policy requirements. These checklist items each have a code that denotes their number and topic. Relevant checklist items are noted in Chapters 5.1-5.10 under each principle of One Planet Living, alongside the objectives and actions under each principle that address the requirements of the policies. Where a checklist item is inapplicable, this is explained in Chapter 5.11.

Some of the One Planet Living actions/outcomes are relevant to more than one item on the SPD checklist, and vice versa. The table on page 11 gives an overview of how the two relate together. The full SPD checklist response is also summarised in Appendix 1 to this Statement.

Key local plan policies to note for environmental sustainability at this development are:

- Policy 28 (carbon reduction, community energy, sustainable construction and water use)
- Policy 29 (renewable and low carbon energy generation)
- Policies 31 + 32 (integrated water management, and flood risk management)
- Policy 70 + 71 (protection of priority species and habitats, and of trees respectively).
    - *(Policy 69 is N/A as the site is not identified as important for biodiversity or geodiversity).*
- Policy 80 + 81 (sustainable access, and mitigating transport impacts); also Policies 5 + 14 (spatial impacts on transport) and 82 (parking standards, including for cycling).

Also relevant are policies on human wellbeing, heritage, economy and community, overleaf.

Policy 28 states that all proposals should demonstrate their approach to the following:

a. Adaptation to climate change – both for building design and wider landscape setting – which might include green roofs, shading from trees and overhangs, passive ventilation, and blue/green drainage
b. Carbon reduction – using the energy hierarchy to firstly reduce demand, then use efficient supply, then use renewables. This should be considered through the masterplan, scale, layout, orientation and massing, such as through passive ventilation and/or passive solar design. Developments should also seek to reduce transport emissions through their location and provision for different modes.
    i. For homes, the minimum achievement is a 44% reduction in carbon emissions versus Part L 2006 (equating to a 19% reduction on Part L 2013)
    ii. For non-residential development, the minimum requirement is BREEAM Excellent, which depends on certain energy, carbon and water use reductions among other measures.
    iii. Major development in a certain area (including this site) should, where possible, connect to heat networks (existing or under construction) unless this is shown to affect viability.
c. Water management: For homes this means designing for water use of no more than 110 litres/ person /day, and for non-residential it means achieving 5//5 credits in BREEAM Wat 01.
d. Site waste management: developments should be designed in a way that reduces the amount of construction waste and maximises the reuse and recycling of materials throughout its lifecycle. The buildings themselves should be designed to enable occupants to recycle, making reference to the RECAP Waste Management Design Guide and the Council's own guidance on this topic.
e. Use of materials – covering responsible sourcing (especially timber), reused materials, reduced embodied impact evidenced by an A or B rating in the BRE Green Guide, and healthy materials that do not harm indoor air quality.

Policy 29 affirms that development that includes renewable and/or low carbon energy generation will be supported subject to the condition that adverse impacts on amenity, heritage and environment (including air quality) and noise) are minimised as far as possible and that any residual localised effects are outweighed by the benefits of the scheme (social, environmental or economic).

Policies 31 and 32 require that sufficient and sustainably designed drainage and surface water management are provided to ensure that the runoff rate is no greater than for the undeveloped site, and that neither the development nor its adjacent neighbouring properties will flood during a 1-in-100 year event, plus an allowance for climate change and local drain system failure. Drainage and surface water management strategies should manage the water as close to its source as possible, use multifunctional ecological infrastructure where possible (e.g. green spaces / green roofs), reuse the water where practicable, use permeable hard surfaces subject to groundwater protection needs, and follow a discharge hierarchy starting with infiltration, then discharge to a water body, and lastly to a surface water sewer.

Policy 70 lays out that development will be permitted where it protects or enhances priority species and habitats. Harm by proposals must be minimised, mitigated and compensated, ideally to achieve net gain. Relatedly, Policy 71 lays out that felling or damage to trees 'of amenity or other value' will only be permitted if the proposal brings demonstrable public benefits that outweigh the current and future value of the trees. Proposals should firstly preserve and enhance existing trees and hedgerows that have such value. If this is not possible then the proposal should provide appropriate replacement planting.

Policies 80 and 81 require that proposals demonstrate how their access arrangements prioritise walking, cycling and public transport, and that there will not be unacceptable transport impacts (seeking a zero increase or reduction in car traffic in areas where congestion or pollution are particularly high). Policy 81 should be fulfilled by showing that the design prioritises these modes over cars wherever there is conflict, that the proposal is suitably located and linked to these modal networks, and that the proposal safeguards existing or proposed new routes for these modes. For Devonshire Gardens, this would include the proposed Chisholm trail. Transport impact mitigation should be delivered through a transport assessment, travel plan and investment or financial contributions where necessary. This investment can go towards infrastructure, services or behavioural change measures. Policy 82 confirms that car-free and car-capped developments are acceptable where there is good access by sustainable modes and where the car-free status can be enforced, and lays out the amount of disabled and cycle parking required.

Policies 5 and 14 assert that higher densities and sustainable transport infrastructure delivery should be key features of proposals in District Centres/Opportunity Areas such as Mill Road.

3.2 Local policy (continued)

On human wellbeing, the following local plan policies are relevant to the development:

- Policy 33 requires that proposals demonstrate no impact from ground contamination to site occupiers, neighbouring occupiers or controlled waters, including from gas migration.
- Policy 35 requires that proposals demonstrate no significant adverse impact of noise and vibration on health and quality of life, both as a result of noise from the development's construction and operation, and where existing noise might affect occupiers of noise sensitive uses at the proposed development.
- Policy 36 requires demonstration that the development will not lead to significant adverse impacts on air quality (including not inhibiting the aims of the existing AQAP) nor health impacts due to locating sensitive uses within areas of existing poor air quality. 'Air quality' means not only NOX and particulates but also odours. This is especially relevant to Devonshire Gardens given that it is located within the Cambridge AQMA that is designated due to poor air quality largely due to existing transport and heating.
- Policy 59 on landscape design requires that landscape and public realm should be an integral part of proposal design. This mean they should relate well to the buildings, incorporate existing positive features such as trees and street furniture, help manage surface water, and use planting to support biodiversity. Designers should show that they have considered microclimate in the layout.
- Policy 68 requires that residential proposals must come with a certain amount of open space and recreation provision, the size and type of which depends on the size and location of the site and existing nearby provision. This should ideally be on-site, but can be provided off-site via a financial contribution if the site is not large enough to provide it.
- Relevant to both biodiversity and wellbeing is Policy 34 (light pollution) requires that if new or altered external lighting is proposed, it will be the minimum required for the task and the design minimises impact to night skies, wildlife, and residential amenity.

On heritage, community and economy, the following policies are relevant to the development:

- As part of the Mill Road Opportunity Area, the site is subject to Policy 24 which states that proposals will be supported if they "add to the vitality and viability of the street and protect and enhance its unique character" such as diverse smaller and independent businesses. It is stated that this includes slowing traffic, prioritising placemaking over vehicle movement, enhancing pedestrian movement, using durable materials, and creating clear entryways into new residential areas.
- Mill Road (including this site) is designated as a District Centre, meaning that it is considered an appropriate area for higher density development and new 'town centre' uses including (appropriately sized) retail and offices under Policy 6 (hierarchy of centres) and Policy 72 (development and change of use in centres) so that these areas remain viable, vital and offer services accessible to a large catchment of people.
- Policy 40 confirms that new office space is encouraged in the areas denoted around the city's two railway stations (of which Devonshire Gardens is just outside) and that new office space elsewhere will be considered on merit.
- Policy 42 confirms that high-quality telecoms (broadband) should be treated as an integral part of new developments so that they allow for increased home working, modern business communications and reduced isolation. Broadband utilities are expected to be integrated so as to minimise visual disturbance and allow ease of future maintenance so that it is able to respond to technological advancement in future without major disturbance.
- Policy 45 requires that affordable housing make up 40% of housing developments over 15 units unless viability problems can be robustly demonstrated. The affordable housing should be indistinguishable from market units in location and quality. If necessary, this can be provided off-site (SPD). A balanced mix of sizes should be provided (number of bedrooms). However, the new Build to Rent policy for Greater Cambridge Housing Strategy instead requires a 20% ration of affordable rental homes.
- Policy 56 on 'creating successful places' lays out that developments as a whole (including outdoor and public realm) should be attractive, high quality, accessible, inclusive and safe. In practice this means integrating well with their surroundings and topography; not allowing vehicles to dominate; using appropriate frontages, active edges and natural surveillance; defining public and private space; incorporating high quality materials and public art; and being suitable for the elderly, disabled and those with children.
- Policy 57 confirms that new buildings should have a positive impact on their setting, and should be safe, convenient and accessible for all users. Relatedly, Policy 61 affirms that proposals should preserve the city's heritage assets including views into and out of heritage areas, and use appropriate form and scale for their surroundings. For Devonshire Gardens this is relevant largely because of the adjacent conservation area.
- Policy 60 lays out the circumstances in which new tall buildings can be acceptable. New tall buildings should make sense with their context (including heritage impact and surroundings), demonstrate high quality architecture, and maintain a human-scale public realm. Their design should also consider the local microclimate on and off site, show no adverse impact on wind, overshadowing or overlooking both on neighbours, and making sure the site's own outdoor spaces are laid out with the newly created microclimate in mind.
- Policy 73 (community, sports and leisure facilities) notes that mixed-use proposals that include on-site community facilities will be permitted so long as they are of the right type and scale to meet the needs of the development's future users. For medium-scale developments, this is stated to typically be 'a community house or room'.
- Policy 79 asserts that visitor attractions will be supported if they are complimentary to existing cultural heritage, are of limited-scale, and help diversify the offer, especially to create a wider offer suitable for families. Devonshire Gardens is not led by visitor attractions, but could be relevant as there is an intention to make its outdoor space suitable for small events.

3.2 Local policy (continued)

Greater Cambridge Sustainable Design and Construction SPD checklist alignment with One Planet Living principles

(see also the code references throughout Chapter 5, and Appendix 1 for a full replication of the checklist and the development's responses to this)

Cambridge SPD checklist items	Health and happiness	Equity and local economy	Culture and community	Land and nature	Sustainable water	Local and sustainable food	Travel and transport	Materials and products	Zero waste	Zero carbon energy
T.1 – T.6 (transport); Pol.16 – Pol.20 (air pollution from transport)	✓						✓			
En.1 – En.3 (energy and carbon reduction)										✓
Wat.1 – Wat.3 (water efficiency); SuDS.1 (sustainable drainage)					✓					
Ca.1 – Ca.3 (climate adaptation - overheating); Pol.21 – Pol.25 (air quality – receptors and ventilation); Pol.27 – Pol.29 (odour); Pol.8 – Pol.14 (noise)	✓									
Ca.4 – Ca.6 (climate adaptation – green infrastructure)	✓			✓						
Ca.7 (climate adaptation – thermal mass; passive cooling)	✓							✓		✓
Bio.1 – Bio.10 (biodiversity and geodiversity)				✓						
Pol.1 – Pol.6 (light pollution including effects on character and amenity)	✓		✓	✓						
Pol.7 (contaminated land)	✓				✓					
Pol.26 (air quality – onsite energy)	✓									✓
Cs.1 (construction standards – existing buildings)			✓						✓	
Ha.1 – Ha.4 (heritage assets & climate change)			✓							✓
Wr.1 – Wr.3 (Recycling and waste)									✓	
Osc.1 (setting targets for reduced impact of materials including embodied carbon)								✓		
Osc.2 (consideration of food-growing space)						✓				
Osc.3 (healthy indoor environments e.g. low VOCs and biophilia)	✓							✓		
Pol.15 (EIA screening); Cs.2 (BREEAM pre-assessment) Osc.4 + Osc.5 (smart technologies and retrofittable design)	All principles / no specific principle									

To guide the development team in setting sustainability objectives for the scheme, Bioregional undertook an analysis of local, county-wide and global needs and issues using the lens of each of ten principles of One Planet Living. This analysis is based on publicly available data, local plan policy aims, and insights from community engagement activities undertaken by the project team such as surveys and workshops. Key identified needs and issues from Bioregional's Needs Analysis include:

Health & happiness

- **Protect air quality** as this site is in the AQMA, and Cambridge has a slightly higher proportion of deaths attributable to air pollution compared to the region and to England
- **Safer active travel**: Cambridge has an excellent rate of walking or cycling (and relatedly low obesity rate), but also a high rate of serious road casualties and bike theft
- **Protect site users from a changing climate:** UK climate projections by the Met Office show that this region will be particularly hard hit by drought and hotter summers
- **Protect site users from noise:** Being next to the railway and not far from the traffic of Mill Road, noise could affect use of outdoor space and use of windows for ventilation
- **Provide green and social spaces** for play, rest, reflection and interaction, especially free activities for children: This ward experiences deprivation in health and outdoor living environment. The small number of children who live in poverty suffer disproportionately in wellbeing. Cambridge performs poorly in some mental health indicators.

Equity & local economy

- **Improve access to housing and services:** This ward and neighbouring wards suffer from quite high barriers to housing and services. Relatedly, SVP analysis identified high rates of rough sleeping and alcohol-related health conditions. Cambridge also has one of the worst ratios of house prices to earnings in the county. 44% of the city's population could not afford the average private rent for a 1-bed home (although for shared ownership, reduced rent and social housing, this improves). New household formation by single people and couples is being suppressed by this situation, so housing must suit those with early-career salaries.
- **Enable more residents to work inside the city and vice versa:** Nearly 55% of the city's workforce commutes in, and this ward has some pockets of employment deprivation.

Culture & community

- **Respect the historic and cultural environment:** The site is adjacent to the Mill Road conservation area, and there is Grade 2 listed building on the other side of Mill Road. Cambridge's overall high-quality historic environment is one of its key unique assets and should be maintained – ditto for Mill Road's vibrant cosmopolitan character.
- **Homes suitable for small households** in order to keep community together: Cambridgeshire is expected to form over 25,000 households in the next decade, and the average household size is expected to shrink from approximately 2.4 people to 2.3 people. If these people cannot find homes locally, they may have to move further away.
- **Ensure the development is ready to welcome a wide range of cultures and demographics:** This neighbourhood is likely to have a higher proportion of residents and visitors of minority ethnicity compared to the rest of Cambridge, given the presence of the Indian Community and Culture Association on Mill Road and the Islamic Centre nearby.
- **Protect people and belongings from crime**: This ward experiences some deprivation in the domain of crime, and the area has a slightly worse than average reoffending rate

Land & Nature

- **More greenery and wildlife habitat features in the local area:** DEFRA mapping shows that this area of the city has a real dearth of habitats useful to wildlife compared to the wider city. Engagement/consultation workshops by Streets Reimagined with the local community revealed a desire for 'wilder-feeling' green spaces.
- **Retain existing trees where possible:** The site has some mature trees forming a diverse green fence that may offer some habitat value although no priority species have been found. The fence/hedge currently inhibits the site's relationship with Devonshire Road but any removals should be carefully balanced, mitigated and compensated.
- **Eliminate any invasive species found on site:** a 2010 ecological appraisal found some Japanese Knotweed although this was not observed again in the 2020 survey.
- **Reduce development pressure on the city's green spaces:** With high housing delivery targets, dense brownfield development has less impact on wildlife and landscapes.

Sustainable water

- **On-site mains water efficiency and supply pipes that are easy to maintain and detect leaks:** This is a water-stressed region, and will become more so in coming decades according to Met Office climate projections. As well as actual water use in the Cambridge Water area, enough water to supply 99,500 people was lost to leaks in 2019-20.
- **Protect groundwater beneath site:** The site sits on top of a regional bedrock aquifer and a smaller secondary superficial drift aquifer.
- **Reduce flood risk including in a changing climate:** the Local Plan asks for development to be ready for the 1-in-100 year event plus an allowance for climate change. The site is currently not at much risk of flood, but the region's winters are projected to have an average rainfall rate that is 10-20% higher in ~2060 than in ~2000.

4.1 Summary of needs analysis (continued)

Local & sustainable food

- **Better access to healthy food:** Analysis by the Social Value Portal revealed that Cambridge has a slightly worse density of fast-food outlets compared to the wider region.
- **More food-growing space in the city:** Council-managed allotments (including two within walking distance of the site) have a waiting list of up to three years. A third allotment nearby (Vinery Road) has closed its waiting list until January 2022. Cambridge's SPD on sustainable construction also encourages the consideration of food growing space.
- **Enable a shift towards more sustainable diets:** Food causes the largest part of the ecological footprint of Cambridge lifestyles, at 27% of the total.
- **Protect and support the region's agriculture:** Cambridgeshire and the East of England are home to large proportions of the UK's best and most versatile farmland. Accommodating denser housing and employment growth in urban brownfield settings takes pressure off greenfield.

Travel & transport

- **Supercharge the active travel habit in the city by making it convenient and safe**: Cambridge has an excellent rate of walking or cycling (and relatedly low obesity rate), but a high rate of serious road casualties and bike theft. This 'supercharging' must include safeguarding the proposed Chisholm Trail to unlock connectivity across the wider city.
- **Further enable a switch away from fossil-fuel vehicles in the city, aiming for a car-free development** : Transport currently emits 20% of Cambridge's carbon dioxide (of which 98% due to road traffic) – but per-capita transport carbon is much lower here than the regional average. In this location so close to the railway station, bus stops and Mill Road shops, site users should not need cars on an everyday basis, other than disabled people. This is an excellent opportunity to encourage new site occupants to form sustainable travel habits. The development should also aim to enable necessary car use to be undertaken with electric vehicles.
- **More cross-regional trips to be made by public transport or zero-emissions vehicles:** Cambridgeshire county has a 33% higher per capita transport emissions than the East of England average, of which 97% from roads. Transport has failed to keep track with reductions achieved in other sectors in recent years. As Cambridge is a major regional destination for employment, education and leisure (with ~55% of the workforce commuting in from elsewhere and 30% of them coming from further than South Cambridgeshire), this need could be met by growing employment and homes near public transport hubs like the railway station, and supporting necessary electric vehicles.

Materials & products

- **Enable a switch to longer-lived, reusable and shared consumer products to reduce finite resource consumption:** 12% of Cambridge lifestyles' ecological footprint is due to consumer goods. An appetite for reuse and repair is evidenced by the presence of repair cafes in central Cambridge and Eddington, and the Community Scrapstore.
- **Sustainable use and choice of materials in construction:** Cement alone represents 5-8% of global carbon emissions, while glass and aluminium are also energy- and carbon-intensive especially if not from recycled sources. The Cambridge Local Plan and accompanying SPD recognise this and request an explanation of responsible sourcing, reclaimed/reused materials, reduced embodied impact (including durability), and materials that are healthier for both building users and construction workers. The county's minerals and waste strategy also prioritises the use of recycled and secondary aggregates rather than newly mined ones.

Zero waste

- **Reduce total waste generation, especially of non-recyclables, and enable greater recycling separation rates:** Waterbeach Landfill is expected to reach capacity in 2033. Of all waste collected by Cambridge and South Cambridgeshire, 49% is recycled or composted (50% for household waste only). Even if sent elsewhere or incinerated, the remainder of waste represents a loss of finite planetary resources.
- **Reduce construction/demolition waste generation:** There could be a capacity shortfall of 3.7 million tonnes from 2011-26 in Cambridgeshire unless facilities are expanded.

Zero carbon energy

- **Reduce carbon emissions from buildings immediately by improving thermal performance and switching building heating away from fossil fuels:** Homes are responsible for 31% of carbon emissions from within Cambridge, mostly due to use of fossil fuel gas. Reducing this would also support air quality improvement aims under the AQMA/AQAP.
- **Ensure homes are affordable to keep warm:** Cambridge does slightly worse than the East of England average for fuel poverty.
- **Increase the supply of renewable electricity:** Industry and commercial activities are the sector responsible for the largest portion of carbon emissions within Cambridge (49% - principally due to electricity use. At the same time, Cambridge lags behind the regional averages for installation of PV panels per capita and renewable electricity generation per household.

Overarching

Policy and needs

Cambridge Local Plan Policy 28

This policy requires that major developments' sustainability statements should outline their approach to

- Climate change adaptation
- Carbon reduction
- Water management
- Site waste management
- Use of materials.

Additionally, it requires achievement of a minimum BREEAM rating of Excellent from 2016 onwards in non-residential development.

It also notes that the Council will be supportive of schemes that use standards such as BRE HQM, Passivhaus or LEED.

Key identified needs and issues

- Create a development that enables good quality lives within the means of a single planet

Development overarching credentials

In the commercial areas, the development is targeting 76.74% of BREEAM credits which is in line with an 'Excellent' rating (>70%). An additional number of potential credits have been identified that, if achieved, could bring the total to 88.43% (BREEAM Outstanding).

The development is also targeting a Home Quality Mark (HQM) rating of 4 stars (out of an available 5 stars) and may achieve as much as 4.5 stars. HQM is designed to assess the design, construction and sustainability of schemes with a focus on what matters to home occupants. It has three themes: cost, wellbeing, and footprint. These are assessed across a three criteria: the home's ability to function in current and future surroundings; the comfort and cost-effectiveness of living spaces, and the quality of delivery (construction and support). Detail is available in the HQM pre-assessment.

The development's approach to the five themes outlined in Cambridge Local Plan Policy 28 can be found under the One Planet Living principles as follows.

Policy 28 themes	Health and happiness	Land and nature	Sustainable water	Travel and transport	Materials and products	Zero waste	Zero carbon energy
Climate adaptation	✓	✓	✓				
Carbon reduction				✓			✓
Water use reduction		✓	✓				
Site waste management					✓	✓	
Use of materials	✓				✓	✓	

One Planet Living® Principle

1

Health and happiness

Encourage active, social, meaningful lives to promote good health and wellbeing

Policy and needs

Cambridge Local Plan Policies

- **Policy 24:** Proposals in the Mill Road OA should create a more comfortable pedestrian environment by responding to desire lines and providing improved pavements
- **Policy 28:** Demonstrate adaptation to climate change; use healthy materials (e.g. low-VOC)
- **Policy 33:** Show no impact from ground contamination
- **Policy 35:** Show no significant adverse impact of noise and vibration
- **Policy 36:** Show no significant adverse impact to or from air quality; do not inhibit AQAP aims
- **Policy 68:** residential proposals must come with a certain amount of open space and recreation provision – which can be off site if space is tight

Key identified needs and issues

- Help protect and improve air quality
- Make active travel safe, enjoyable and convenient
- Protect users from noise and climate change
- Enable use of outdoor spaces for leisure, relaxation, rest, reflection and social interaction

Development objectives for Devonshire Gardens

1 Create open green space that supports wellbeing and climate resilience. This is to be flexible, welcoming, accessible by all, allow social interaction, exercise, play and contemplation, and help to mitigate heavy rainfall and heat.

2 Thermal comfort indoors to be achieved and maintained, including in future climate

3 Access to natural daylight, with good lux levels across the scheme and zero or minimal impact on neighbouring areas.

4 Support safe and secure active travel: make the site safe, convenient and enjoyable for active travel users entering, leaving, lingering or circulating around the site

5 Protect air quality in this AQMA, and take measures to improve it where possible

6 Protect site users and neighbours from noise, especially from the railway, road and any on-site equipment

7 Understand, maintain and improve quality of life provided on site when operational

Actions to achieve health and happiness objectives

Checklist / policy

1. Create open green space that supports wellbeing and climate resilience

1.1 Of the 1.23 hectares of land, 36% will be hard landscaped public realm, and 15% will be public amenity green space (in addition to private amenity terrace to homes and private curtilage garden attached to creche). Hard landscaping within the public realm space allows circulation by all abilities (permeable paving for rainwater infiltration will be used where appropriate – see Sustainable Water). Some outdoor space at ground level is private amenity for homes and the creche, but most is public. The block arrangement affords views on to green space from the facades of all blocks. A further contribution towards offsite provision will fulfil policy 68.

1.2 These spaces (and the buildings) are made more resilient to heatwaves by retaining the vast majority of the existing mature trees and planting an additional 68 trees across the central green garden and site edges to create a woodland-inspired setting with wildlife benefits (final total 125 trees, many deciduous). This allows circulation and active play but also offers a sense of defensibility and refuge for rest and reflection.

2. Thermal comfort indoors to be achieved and maintained

2.1 All of the homes are designed to be dual-aspect (per London Plan definition) allowing windows to be opened on two facades, and all homes will have MVHR for ventilation.

2.2 On sun-exposed facades, the development will use careful glazing ratios, shading devices (where needed) and lower g-value glass to avoid excessive solar gain.

2.3 Devonshire Road homes will have shading from retained mature trees, as well as newly planted trees.

2.4 Flat roofs will be green roofs as shown in architectural designs as to comply with policy 31.

2.5 Heating and hot water pipework will be insulated, and lighting will be high-efficiency with low heat output

2.6 TM59 domestic overheating analysis has been undertaken for a sample of homes most at risk of overheating. Thanks to the above measures, all sampled homes pass the ‘adaptive comfort’ criteria. Additionally, all bedrooms in sampled predominantly naturally ventilated homes pass the ‘fixed’ criteria.

2.7 Office blocks B and C will be served with high-efficiency reversible heat pumps, i.e. active cooling. Block D is served by a VRF unit providing heating and cooling.

3. Access to natural daylight

3.1 Daylight/sunlight analysis has shown that 93% of the scheme’s outdoor amenity areas receive at least 2 hours of sunlight on March 21st, well over the 50% target. The proposed deciduous trees let light through in winter. The analysis also shows that 95% of rooms meet the daylight target values. In the few that do not, this is due to north-facing living rooms. All units have access to a balcony that provides an alternative amenity.

3.2 The analysis also shows that the majority of neighbouring properties either meet or exceed the BRE guideline target values for daylight/sunlight. Daylight amenity is appropriate for all potentially impacted neighbouring properties.

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Ca.6
Policy 59
Policy 68

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Ca.3
Ca.7

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Osc.4

Actions to achieve health and happiness objectives

Checklist / policy

4. Support safe and secure active travel:

4.1 This site is just 6 minutes' walk from Cambridge Railway Station, 3-5 minutes' walk from grocery shops and buses on Mill Road, and 5 – 15 minutes' walk to various schools.

4.2 The Transport Assessment and Travel Plan show that the site benefits from several existing cycle routes, some of which are already segregated from vehicles. It will also remove a large number of vehicles from the local road area (see actions under Objective 5, below) therefore potentially reducing the risk of conflict between vehicles and on-road cyclists.

4.3 The proposal safeguards the future cycling Chisholm Trail of at least 5m along the eastern edge, and creates a much improved foot and cycle access route along Devonshire Road. It also opens up new permeability by foot between Devonshire Road and the Chisholm Trail. Subject to agreements, links could also be added from the Gardens to Angus Close and the railway cottages.

4.4 A first-class end-of-journey cycling facility in blocks B and C for workers is offers secure storage for 351 bikes (incl. 5% provision for cargo/larger cycles), 16 showers (of which 2 disability accessible) and 160 lockers. A further 90 free-to-use outdoor cycle spaces are included (64 commercial, 16 creche, 12 residential), mostly under natural surveillance from building facades. Homes will have access to separate secure cycle storage located inside each block. A Framework Travel Plan (submitted separately) denotes measures to promote take-up of these active travel opportunities, such as via welcome packs and events on cycle training and repair. This will be conducted by a Travel Plan Coordinator, funded by the site management company.

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5. Protect air quality in this AQMA

5.1 By ending Travis Perkins operations and replacing this with a nearly car-free development, the finished scheme will remove 360 vehicle movements per day from the local road network (see Transport Assessment). Only 3 parking spaces are provided (1 car club and 2 disabled), all provided with electric vehicle charging. As an overall result, the proposals are assessed to have a significant positive impact on local air quality. It is not thought that the development will inhibit any actions outlined in the Air Quality Action Plan.

5.2 The development's energy strategy is all-electric and excludes any form of combustion (no fossil fuels, no biofuels)

5.3 Construction & demolition traffic flows generated by development will be estimated and their emissions impact managed by a Construction Environmental Management Plan to be provided by the Applicant as a condition to approval of this application. There is a risk of generation and track-out of dust from earthworks and construction., which are to be managed by a range of measures including monitoring, screens/ enclosure of high-dust activities and materials, wet cleaning / wetting-down, using electrical equipment instead of diesel, and not allowing vehicle idling. For full measures, see Air Quality Assessment.

5.4 Although not a formal commitment yet, there is an aspiration for future detailed design to specify finishing materials in with the aim to minimise VOCs and thus allow good indoor air quality.

Pol.16
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Osc.4
Policy 36

6. Protect site users and neighbours from noise

6.1 A railway vibration noise impact assessment has been carried out based on an April 2021 survey. Vibration values fall well below limit levels (GCSP and BCO), but regenerated noise may exceed the limit by 4-9dB for Block D only. A design note identifies mitigation options to be allowed for in costing and architecture: full building isolation using elastomeric or spring bearings in the structural frame, or box-in-box design with specialist acoustic fixings for the walls, floors and ceilings. These will be developed at subsequent detailed design stages.

6.2 Proposed taller buildings (commercial) are along the railway boundary, helping to screen existing and proposed homes on Devonshire Road from rail noise. The central garden is screened from both the railway and traffic noise thanks to the buildings surrounding it, and soft landscape will reduce reverberation. Homes in blocks F+G on Devonshire Road (43 of the scheme's total 70) are well away from the railway, and a further 27 homes in Block A are shielded from Mill Road noise by existing railway cottages.

6.3 A noise control strategy has been produced, using results of environmental sound and vibration surveys of existing conditions to inform a 3D acoustic model of proposals. It finds that the required internal sound limits can be achieved with conventional double glazing except on facades directly overlooking the railway. For these, higher-performance acoustically rated double glazing is proposed. Mechanical ventilation will give all blocks an alternative to opening windows. A heavy concrete frame for residential blocks will also help dampen vibration and noise from outside Proposed plant is specified to stay well below required limits specified in GCSP requirements. Cooling plant equipment for commercial blocks B and C is to be located on the roof of the commercial block C where the building mass will help screen noise, and will have anti-vibration mounts and a solid screen. For more detail, see the **Noise Control Strategy**.

6.4 As per commentary under objective 5 (air quality) the completed development is expected to have fewer associated road traffic and deliveries than the existing Travis Perkins use. Therefore, road traffic noise levels at the site and surrounding premises are expected to remain as per the existing scenario as a worst case. The construction traffic noise would be managed through measures to be devised through a Construction Environmental Management Plan that would be provided by the Applicant as a condition to approval of this application.

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Policy 35

7. Understand, maintain and improve quality of life:

7.1 Although not a formal commitment at this stage, there is an aspiration to explore suitable post-occupancy evaluation to find out whether the site delivers the intended quality of life, rectify problems if needed, and apply learning to future projects.

Checklist / policy

Further detail on design proposals and relation to SPD checklist relevant to principle of Health & Happiness

7.7 The development does not significantly alter the rail network. It makes a very minor alteration to the road network by removing the existing vehicle entrance from Devonshire Road which could be considered a junction used only for Travis Perkins operations. This is replaced by two separate low-use vehicle entrances for servicing and deliveries only. Because these are very low-use, they are proposed as vehicle crossovers of the footway, not new junctions as such. We do not believe the development would create a street canyon that would prevent dispersal of pollutants from any near site source. None of the parking spaces are underground. A letter from GCSP on 28th June 2021 confirms that, based on an EIA screening report, this development does not need an environmental impact assessment.

Pol.18
Pol.21
Pol.25

Proposed uses / use classes and relationship with air quality

7.8 The development is within an AQMA and includes the sensitive receptors of new residential use (class C3) and a creche, class E(f). An air quality assessment by Hoare Lea (provided separately) shows that despite the AQMA designation, pollutant concentrations have been in compliance with the relevant air quality objectives in the last three years and that the railway line does not have heavy enough diesel trains passing to have any significant effect on occupants.

7.9 The commercial space will also be the new flexible use class E – specifically, E(g)(i) and E(g)(ii) which are offices and research/development premises that can be carried out without detriment to residential amenity. Further community uses on the ground floors of blocks A and F/G will be class F.1 and/or F.2 (learning/ culture, meeting places, or small essential shops) which do not imply noise or air quality impacts. Because the new E-classes are flexible to change of use, the site could in theory later accommodate a dry cleaning business (which would be PPC regulated) or a restaurant (which could have a low to medium odour risk). If dry cleaners or restaurants were to come to site in future, the impact of these would be addressed at that point. Space has been left in rooftop areas on some non-residential blocks for additional plant equipment to be specified by occupants (see noise control strategy). All homes and the creche are provided with MVHR as a minimum, and the commercial areas will have air handling / active cooling plant.

Pol.22
Pol.23
Pol.24
Pol.27
Pol.28
Policy 36

Contaminated land

7.10 Ground investigations found a risk of hydrocarbons in soil in the south end of site, due to its previous industrial uses. To manage this, the ground investigation survey recommends appropriate foundations to resist this (concrete class DS-2 AC-1s). For the same reason, the sustainable drainage strategy provides a predominantly porous hard paved areas with gradient falls towards raingarden attenuation beds, where possible (see drainage strategy). For soft landscaped areas, suitable subsoil and topsoil will need to be brought in to sever pollutant pathways. Groundwater monitoring does not indicate any unacceptable levels of contamination of potable aquifers, and the gaseous contamination risk is found to be low.

Pol.7
Policy 33

Avoiding and managing light pollution

7.11 Following an EIA screening, a letter from Cambridge City Council by letter in June 2021 confirms that an EIA is not required but that there should be a report on external artificial lighting. The development proposal includes external lighting for the purposes of safety, security and to create a welcoming environment that supports perception of safety. The need for this lighting, and principles of the external lighting strategy, are laid out in the External Lighting Report (provided separately). Light pollution impacts on character, amenity and biodiversity have been minimised through various measures including overnight timers to switch off building perimeter lights from 11pm-7am (plus motion sensors), using low-level lighting in the garden and entryway, low-level lighting to tree planters on Devonshire Road that face towards the site footway not the street, and using the minimum lighting necessary for safety and security of site users. The impact on sky glow, light trespass, glare and landscape character is assessed to be only 'minor adverse'. The constructor will be required to sign up to the Considerate Constructors Scheme and as such will act quickly and responsibly to rectify any lighting misaligned and/or found to be causing a nuisance.

7.12 The commercial parts of the development are targeting the 1 available BREEAM Pol 04 credit, which means that the external lighting strategy will have been designed in accordance with relevant ILE guidance from 2011 and external lighting will be able to be switched off between 11pm and 7am. The exception is safety/security lighting which must instead be designed to comply with the lower levels provided by the same ILE guidance document.

Pol.1
Pol.2
Pol.3
Pol.5
Policy 34

One Planet Living® Principle

2

Equity & local economy

Creating safe, equitable places to live and work which support local prosperity and international fair trade

Policy and needs

Cambridge Local Plan Policies

- **Policies 6 + 72:** As a district centre, Mill Road (including this site) is a suitable location for new offices and retail (at the right scale and diversity to add vitality)
- **Policy 24:** Proposals in the Mill Road OA should add to the vitality and viability of the street and protect and enhance its unique character
- **Policy 40:** New office space is encouraged around the two railway stations; others considered on merit
- **Policy 42:** High capacity broadband should be an integral part of development, minimise visual impact and future disturbance during maintenance, and be able to respond to technological changes
- **Policy 45:** Affordable homes should make up 40% as the total is over 15 units (offsite if necessary) and should be indistinguishable from market
- **Build to Rent policy:** 20% of homes to be affordable rent
- **Policy 51:** All homes should meet Building Regs M4(2) (accessible/adaptable) and 5% of affordable homes should meet M4(3) (wheelchair user homes).
- **Policy 56:** Proposals should be attractive, high quality, accessible, inclusive and safe

Key identified needs and issues

- Improve access to housing by providing affordably priced and suitably sized homes
- Enable more people to both live and work in the city, including better-paid jobs for more people

Development objectives for Devonshire Gardens

8 Create social value: demonstrate a net positive social value contribution through Social Value Portal analysis

9 Affordable housing numbers at least in accordance with local policy, equitably integrated with other housing

10 Suitably sized housing for local needs, taking into account current and future predicted household sizes

11 Contribute to the Mill Road area offer, and grow the micro-economy

12 Offer suitable workspace for local demographics, skillsets and sectors

13 Inclusive and accessible design: the design must consider all ages and abilities to welcome a diverse and balanced community

Actions to achieve equity and local economy objectives

Checklist / policy

8. **Create social value:** Social Value Portal Analysis was performed early in the design process (to inform an understand of needs). Subsequent analysis confirms that the development will deliver up to £256.6m in social value over 2 years of construction and 20 years of occupation/management. This is delivered through a wide range of routes including creating local employment, jobs specifically for disadvantaged people, work placements, volunteering, and carbon reductions. (For more detail see Social Value Statement, provided separately).

9. **Affordable homes:** All homes will be rentals, which are more financially accessible as they do not require a large deposit (as noted in Savills Market Report). Of the 70 homes in the proposal, 20% will meet affordability criteria of at least 20% reduction on market rent, fulfilling the 20% ratio required by the Cambridge City Council Build to Rent policy. The affordable homes will be fairly distributed throughout blocks F&G alongside market homes, so that their occupants enjoy the same access, amenities, security, and standards.

Cambridge emerging Build to Rent policy

10. **Suitably sized homes:** The development offers a range of home sizes in the following numbers: 1-bedroom (46); 2 bedroom (23), 3 bedroom (1). This creates a range of bed spaces from 1 to 5 bed spaces. 54 of the total 70 homes offer between 1 and 3 bedspaces, reflecting the local average household size of 2.4 (projected to shrink to 2.3 in coming years). Savills Market Report notes Cambridge has very few 'Aspiring Homemaker' households that might seek larger homes.

11. **Supporting and expanding the Mill Road offer:**

11.1 A Local Offering and Social Infrastructure Review was conducted to understand the present mix of businesses and other organisations and how people use the area, so that the development can complement this and respond to locals' aspirations.

11.2 Blocks A and F/G have ground floor units dedicated to 'community' use which can include small essential shops as well as other creative and educational community use. These create an active frontage and of a smallish size which would suit smaller businesses or community cafés. The Block E creche will support working parents in the area. Office workers are also likely to spend at Mill Road e.g. lunches, personal grooming, dry cleaning, etc.

Policy 6
Policy 24
Policy 72

11.3 Nearer to occupation, there is an intent to identify local businesses and non-profits with which Devonshire Gardens could form a symbiosis such as restaurants, repair cafe and Cambridge Sustainable Food. There are also more immediate plans to engage with local artists and initiatives such as Cambridge Canopy Project, Cambridge Community Arts and the Botanic Gardens to collaborate on the planting, public art and site activation. Some of the initial exploratory conversations have begun.

12. **Offer suitable workspace for local skills and sectors:** the Market Report shows that the Cambridge commuting market is very self-contained (most residents work in Cambridge, and vice versa plus small nearby towns)

12.1 The proposal creates 12,754m^2 GIA of commercial space which is able to respond to market demand. This is intended for former use class B1 (office). Some offices will be suitable for large corporates wanting entire floors, and some will be flexible shared space to suit remote workers or start-ups.

12.2 Blocks B, C, and D are targeting a WiredScore of platinum which demonstrates its telecoms provision can accommodate the sectors and working patterns of today and the future.

Policy 40
Policy 42

13. **Inclusive and accessible design:** the development aims make its social, amenity and employment opportunities inclusive to different abilities and needs. It does this by reserving both parking spaces for disabled users, creating hard surfaced paths throughout the garden, having 2 disabled user showers and 5% cycle spaces suitable for larger/adapted cycles in the cycle hub, step-free access to all parts of buildings via lifts, and having all homes conform with Building Regulations M4(2) (wheelchair adaptable) and 5% of affordable homes M4(3) wheelchair accessible (1 home in Block F, ground floor, adjacent to blue-badge parking space).

Policy 51
Policy 56

One Planet Living® Principle

3

Culture & Community

Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living

Policy and needs

Cambridge Local Plan Policies

- **Policies 6 + 72:** As a district centre, Mill Road is a suitable location for new offices and retail
- **Policy 24:** Proposals in the Mill Road OA should emphasise placemaking over vehicle movement, include clear gateways/ entry points to site, and contribute to local vitality and character
- **Policy 45:** Affordable housing should be indistinguishable
- **Policy 56:** Proposals should be attractive, high quality, accessible, inclusive and safe
- **Policy 57:** New buildings should have a positive impact on their setting and be safe, convenient and accessible for all users
- **Policy 60**: new tall buildings should make sense with their context (including heritage), demonstrate high quality architecture, show no adverse impact on wind, overshadowing or overlooking, and maintain a human-scale public realm
- **Policy 61:** Proposals should preserve the city's heritage assets including views into and out of heritage areas, and use appropriate form/scale
- **Policy 73:** Mixed-use schemes with integrated community or leisure space are acceptable if the space is of the right scale + use
- **Policy 79:** Proposals for new visitor attractions should compliment cultural heritage and ideally suit families

Key identified needs and issues

- Protect and reflect the heritage setting of the conservation area, and the cultural setting offered by Mill Road
- Homes suitable for small households
- Protect people and belongings from crime
- Welcome diverse demographics
- Create social value

Development objectives for Devonshire Gardens

14 **Spur a culture of sustainability:** encourage sustainable practices and formation of sustainable habits on site including in construction, residents, and commercial occupants

15 **Flexible, welcoming community spaces:** deliver indoor and outdoor spaces that work on a formal and informal basis, grow social capital and connections, and create a sense of security for all users

16 **A distinctive development that makes sense in context:** Development that respects and reflects its immediate neighbourhood setting and city heritage while developing its own identity

17 **Community engagement and impact on design, use and operation:** Conduct and integrate community engagement that is active and meaningful, to understand and respond to local residents' and workers' needs and aspirations

Actions to achieve culture and community objectives

Checklist / policy

14. Spur a culture of sustainability: The ultimate aim of using the One Planet Living framework from the early stages of design is to create a development that makes it easy and attractive to live sustainable lives. Part of this is about including 'nudges' to help people form sustainable habits. Design features include:

14.1 A development that is car-free aside from the necessary disabled parking spaces, and instead is provides a large number of convenient and attractive cycle parking spaces (and other first-class cycle facilities). It also entices walking by adding permeability through an attractive green space.

14.2 In addition to private gardens, there will be community food growing areas on the sunniest facades on site – although the produce will be a small proportion of overall diet, it allows people to grow their food literacy

14.3 There is also an intention to carry forward this approach into operations. Although many operational choices cannot be fixed before planning permission, initial intentions are as follows:

14.3.a Explore potential for community spaces on site to accommodate initiatives that attack the problem of food waste and food poverty – such as a community kitchen and/or surplus redistribution hub (initial conversation with Cambridge Sustainable Food has taken place) – or that address overconsumption of consumer goods, such as a Library of Things or repair café

14.3.b The site is to be retained and operated by the investor RailPen in the long term, which allows further monitoring and engagement to take place on issues such as waste/recycling, energy efficiency, water efficiency, and promotion of sustainable lifestyle opportunities/events. Socius (with advice from Bioregional) has begun exploring what could be included in 'green leases' for the commercial and community spaces to ensure that they are operated and maintained sustainably, starting firstly with the Better Buildings Partnership Green Lease Toolkit. Such clauses can only apply to the performance of the building itself.

15. Flexible, welcoming community space:

15.1 The proposed layout incorporates 371m^2 of dedicated indoor community use of F1 / F2 class, which can be used for a range of activities including education, art, libraries, worship, meeting places or small essential shops. 3 of these units are located at entrances visible from Devonshire Road (to create a sense of arrival, identity and welcome), and 1 more is a few paces away from the road, activating the garden heart. A creche (312m^2 GIA class E(f)) is located at a quieter part of site to the southern end. This benefits from a slightly more secluded setting and a façade onto green space. Co-locating this with the site's other uses supports working parents.

15.2 Outdoor spaces also form a key element of the community vision for the scheme. In addition to the lush green garden soft landscaped areas, there are hard surfaced paths throughout so that wheelchair/pushchair users and those using other mobility aids are able to access the site equitably. A variety of naturalistic play features are included to enable informal play whether while lingering or passing through ('play on the way') – see Landscape Statement). A covered timber pavilion within the gardens is intended to provide a sheltered spot that could be used for community and cultural events in a variety of weather conditions, such the Mill Road Winter Fair. The intent is that this pavilion will be subject to a local design competition. The entire garden benefits from natural surveillance day and night from the mixed uses, and achieves a balance of seclusion and permeability.

Osc.2

Policy 56
Policy 58
Policy 68
Policy 73
Policy 79

Checklist / policy

16. A distinctive development that makes sense in context:

16.1 No heritage buildings are modified or lost by redeveloping this late 20th century retail warehousing site. The archaeological report shows that there is only a very limited potential that further heritage/ archaeological assets could be found on site, due repeated disturbance in previous decades.

16.2 The development responds to the scale and form of its locality by placing smaller residential buildings of a 3-storey terraced form on the Devonshire Road edge, mirroring the height, use and scale of the existing terraced homes in the conservation area that starts on the other side of the street. Vice versa, the proposed taller buildings are on the railway edge of site and will be barely visible from Devonshire Road. These will have a more industrial character to reflect that, using a sheet metal sawtooth roof which is appropriate for the railway setting and reflects early 20th precedents in Cambridge (e.g. the university's Inglis Building) while also improving solar electricity generation potential. The sawtooth roof also provides north-facing roof lights into the top floor of Block C, which provide a consistent level of light without excessive solar gain or visual glare for building users.

16.3 The height of the tallest building is 5 storeys plus sawtooth roof (max height 22.2m), representing a transition between the emerging Ironworks development to the north (up to 21.5m) and the dense CB1 district a few minutes' walk south from the site (up to 31m). At the northern, western and southern edge, mid- to low-rise buildings provide a gentler transition to the residences adjacent to the site (see images overleaf). As the taller buildings are stepped back possible from Devonshire Road, they will not significantly affect sunlight into existing homes (as confirmed in the Daylight and Sunlight Report, provided separately). The LVIA/TVIA (submitted separately) will evidence the minimal impact on townscape and key views. The Heritage Statement confirms that overall impacts are negligible adverse (less than substantial), with minor beneficial impacts.

16.4 A pallet of tactile and interesting materials is chosen for the exteriors, most prevalently brick walls, sheet metal roof (commercial) and natural slate roof (homes on Devonshire Rd).

17. Community engagement and impact on proposals: This has taken place from an early stage, in two main rounds: November/December 2020 and February 2021. It used digital means to overcome COVID barriers to movement and interaction. (See Statement of Community Involvement and timeline in Design & Access Statement). Activities included:

17.1 Promotion of the consultation (and dedicated website) via social media adverts, local newspaper adverts (physical and digital), press releases to local media, flyering to local addresses, and digital and physical letters issued to local businesses / business groups, community organisations, elected representatives and other key stakeholders. Feedback could be given via 'Give My View' (see below), a freepost address, a dedicated email address and callback service on the website, or at the webinars.

17.2 A series of three 'key stakeholder' workshops by Streets Reimagined in late 2020, on the topic of *Character & Place, Liveability, Health & Open Space*, and *Walking, Cycling & Active Travel*. 15 people attended. Key community desires expressed were to maintain the sense of buzzing streetlife, intimate streets and spaces; feature corner buildings; more variety of homes; use of brick; naturalistic green spaces; food growing; and better walking and cycling provision (including cycle parking) on Devonshire Road to link to the rail station.

17.3 Surveys of how local people use the area and their preferences, as part of Local Offering Review (WSP)

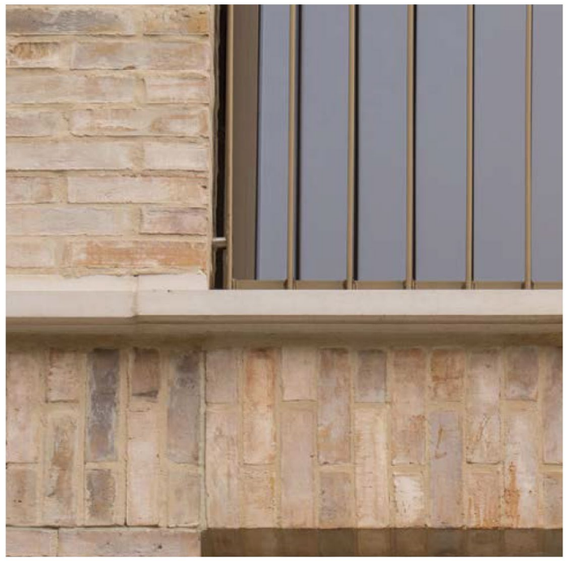
17.4 Surveys that targeted local social media users to give their views about how the site and neighbourhood should develop via a simple series of questions on habits and preferences on feedback platform named 'Give My View'. 3435 people took part, counting pre-consultation phase and both consultation phases. This revealed strong positivity to the prospect of new public green space, and a desire for new independent retail, community space, pop-up event space, and arts/culture in the neighbourhood. Eco friendly design was rated as the top of four design priorities, the others of which (in order) were supporting health and wellbeing, complementing Mill Road, and reflecting Cambridge heritage. Of four approaches to green space, the top priority was 'more trees and biodiversity' while the others (in order) were open grass, landscaped areas, and a bandstand/pavilion. For use of public space, the top priority was a community garden and food stalls/market (e.g. as part of Mill Road Summer and Winter Fairs). For transport, the top priorities were better pedestrian routes, and electric vehicle charging. For sustainability measures, the respondents' top priority was ecological infrastructure, followed by sustainable materials and a car-free zone.

17.5 Three virtual public webinars (attended by 13 people) to present early designs, explain rationale and gather feedback, one of which was recorded and placed on the website

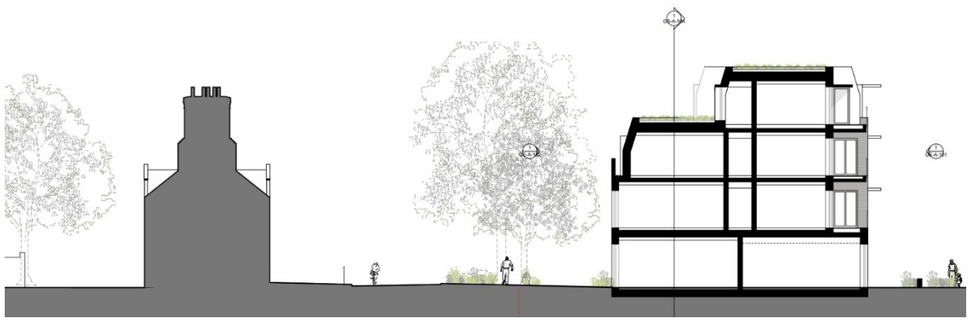
17.6 The design responds to the above by providing ground floor space suitable for independent retail, community space and arts/culture; pursuing sustainable design; providing public green space with many new trees, community growing space, suitable areas for pop-up food stalls, and ecosystem service benefits; using brick; creating new/improved pedestrian routes and a nearly car-free development whose only spaces offer EV charging. The majority of feedback on emerging designs on Give My View was neutral to positive.

Policy 56
Policy 57
Policy 60
Policy 61

Illustration of layouts with public space, community uses, and heights



SOLIDER COURSE BRICK DETAILING



Block A section and relationship with existing Devonshire Road homes

Height changes along railway edge Block B+C

One Planet Living® Principle

4

Land & nature

Protecting and restoring land for the benefit of people and wildlife

Policy and needs

Cambridge Local Plan Policies

- **Policies 2, 3, 4** – concentrate growth inside the urban area especially brownfield; protect the Green Belt
- **Policy 34:** Minimise light pollution impact on wildlife
- **Policy 59:** landscape and public realm should be an integral part of proposal design; relate well to the buildings, consider microclimate, incorporate existing positive features, help manage surface water, and use planting to support biodiversity
- **Policy 70:** developments should protect or enhance priority habitats and species
- **Policy 71:** Existing trees with 'amenity or other value' should be protected and retained if possible; felling only if benefits demonstrably outweigh the losses, and should be compensated

Key identified needs and issues

- Retain existing mature trees as far as possible while improving relationship with Devonshire Road
- Add to the neighbourhood's low existing level of green areas and wildlife habitats
- Alleviate development pressure on greenfield by making efficient use of urban brownfield

Development objectives for Devonshire Gardens

18 **Maximise biodiversity to deliver a measurable net gain:** bringing new habitats to site for the benefit of both wildlife and human contact with nature

19 **Wildlife-friendly greenspace maintenance:** ensure that the operational maintenance plan sustains and enhances the value of the site for biodiversity, informed by the appointed ecologists' recommendations

20 **Make the green spaces multifunctional:** create both public and private green spaces that support seclusion and reflection, activity and interaction, and climate resilience

21 **Enhance contact with nature via site activation and detailed designs**

Checklist / policy

18.i **An ecological appraisal (including biodiversity survey) was conducted** by BSG Ecology, based on an extended Phase 1 habitat survey and desk study in November 2020. Its full findings are provided separately as part of the planning submission, but are summarised here as follows.

18.i. a The species-rich hedgerow on the western edge of site has the potential to support bats or badgers for foraging or commuting, However, the survey found no evidence of bats, badger or nesting birds anywhere on site. The survey concluded that the hedgerow offers 'limited potential' for nesting birds. Due to the majority of hardstanding and no habitat features other than the hedgerow/tree strip, the entire site is 'suboptimal' for hedgehogs (with one dead individual found on site).

18.ii **A 2010 field survey and report on the same site by Robert Stebbings Consultancy had similar findings** and also notes that the site is not suitable for slow worm, common lizard, amphibians or notable invertebrates. Shoots of Japanese Knotweed were found in the 2010 survey but were not observed again in the 2020 survey.

18.iii **Although there are some Tree Protection Orders** over trees in the western hedgerow, a site visit on 7th July 2021 with a Tree Consultant from Cambridge City Council revealed that upon inspection, some of the TPO trees didn't merit retention, including one that would have had a large root protection area. See also Tree Report (provided separately).

18.iv **The development does not take place on or near a European (Natura2000) site.** The ecological appraisal by BSG found that even without mitigation, impacts on designated sites are unlikely.

Bio.1
Bio.2
Bio.3
Pol.3
Bio.10

3D satellite image of the site in its current state. Google Maps, 2021.

18. Maximise biodiversity to achieve a measurable net gain:

18.1 For step 1 of the mitigation hierarchy, the proposals are laid out to retain the vast majority of existing trees on Devonshire Road and other edges. Of the 78 trees currently on site, 57 are to be retained and 21 are to be removed. A tree survey confirms that the removed are largely of limited habitat value and likely not to grow much further due to their constrained settings. Removals (agreed in principle with a Cambridge City Council Tree Consultant on a site visit) are undertaken only as necessary to create access for foot, bike and service vehicles, creating a better relationship with Devonshire Road, plus improved foot and cycle space along Devonshire Road and the proposed Chisholm Trail.

18.2 For step 2 of the mitigation hierarchy, the ecological appraisal recommends to:

18.2.a Avoid illumination of retained habitat features. An External Lighting Report (submitted separately) confirms measures to fulfil this, including low-level lighting to avoid sky glow, using timers, and exploring the need for light shields at a later date.

18.2.b Ensure any pits or containers during construction should be covered over to prevent trapping of hedgehogs or badgers, and that any removal of trees/hedgerows is carried out between late August and February (outside bird nesting season) or else engage a qualified ecologist to survey for active nests before work begins. These points should be carried forward in a CEMP to be provided by the applicant as a condition.

18.3 For step 3 of the mitigation hierarchy, the development converts large areas of existing hardstanding to green space forming the central 'garden' at the heart of the site. The scheme will have 68 new trees with growth space (in addition to 57 retained trees), 90m^2 new hedge, 491m^2 of biodiverse rain gardens, 275m^2 public amenity grass (excluding creche garden), 80m^2 edible planting, 1160m^2 green roof and 400m^2 planted blue roof. For more detail on tree selection and placement, see Landscape Statement.

18.4 Swift nest boxes (8) are added to the north and east elevations of taller blocks, offering a clear-drop flight path. Trees will also have bird boxes (2), spaced to avoid competition. Hedgehog houses (2) will be added to the mature hedgerow and garden. A bee hotel is proposed for a central area that will catch midday sunlight, set back from paths.

- All together, the proposal will achieve a **357% Biodiversity Net Gain** (DEFRA Metric 2.0).
- A Developing with Nature assessment has been conducted and shows a provisional score 125/175, achieving the necessary score for 'LNP Charter Mark Excellence' rating.

19. Wildlife-friendly operation and greenspace maintenance:

19.1 The development targets 3 credits under BREEAM LE04: Long term ecology management and maintenance which would require creation of a landscape and habitat management plan. This would be produced at a more detailed design stage and would draw on recommendations from the ecological appraisal as above.

Checklist / policy

Bio.4
Bio.5
Bio.6
Pol.3
Ca.4
Ca.5

Bio.7
Bio.8

Bio.9

Proposed landscape general arrangement (Rev.P3) – see full key overleaf.

Landscape general arrangement (*rev. P3*)

Existing trees

Existing Category B Tree to be retained (RPA and FSB shown)

Existing Category C Tree to be retained (RPA and FSB shown)

Existing tree to be removed (all Category C trees, RPA and FSB shown)

Proposed Trees (T)

T1- Proposed new large deciduous tree Acer Freemanii (Freeman Maple) / (Carpinus betulus (Hornbeam) to be supplied as semi-mature stock

T2- Proposed new large evergreen tree (Pinus sylvestris (Scots Pine) to be supplied as semi-mature stock

T3- Proposed new medium deciduous tree Cercidiphyllum japonicum (Katsura) / Prunus avium 'Plena' (Double Geun) / Tilia cordata' Winter Orange' (Small Leaved Lime) to be supplied as semi-mature stock

T4- Proposed new small deciduous tree (Amelanchier lamarckii (Juneberry) (/ Crataegus prunifolia (Broadleaf Cockspur) / Tilia mongolica (Mongolian Linden) to be supplied as extra heavy standard (EHS)

T5- Proposed new fruit/ edible tree Malus 'Everest' (Crab Apple Everest) to be supplied as extra heavy standard (EHS)

T6- Proposed medium deciduous tree planted in groups (Betula ermanii (Golden Birch) to be supplied as semi-mature stock

T7- Proposed new upright deciduous tree (Carpinus betulus 'Frans Fontaine' fastigiata (Fastigiate Hornbeam) to be supplied as extra heavy standard (EHS)

Proposed Planting (P)

- P1 - Raingarden Planting (varies 0.4m-1.2m)
- P2 - Ornamental/ woodland planting (varies 0.4m-1.2m)
- P3 - Species rich amenity lawn - high fescue, mixed species seed
- P4 - Edible planting Areas (varies 0.4m-1.2m upto1.8m climbers on support canes)
- P5 - Threshold Planting (varies .02m- 0.6m)
- P6 - Instant Hedge with post & mesh support structure, species to suit location (1.2m high, 0.5m wide)
- P7 - Opportunity to green existing fence w/ climbing plants, subject to ownership permissions/requirements

Edge Treatments/ Upstands (E)

- E1 - Wall and integrated seating
- E2 - Tree grill laid flush around trees in hard landscape
- E3 - Shared surface edge, laid flush and rising to 60mm upstand where required
- E4 - Lawn and Planting narrow edging, laid flush to 110mm upstand
- E5 - Timber edge
- E6 - Concrete edge
- E7 - Robust raised planter (i.e. Marshall's RhinoGuard® Cristina Planter) with evergreen planting (size varies)
- E8 - Rootcells 'Rootspace' by GreenBlue Urban, providing 30m3 of rooting volume
- E9 - Railings with self-closing (soft close) gates, 1.2m high, powder coated metal.
- E10 - Chestnut timber post and rail fence 1.2m high, to delineate private terraces from raingarden
- E11 - Partition privacy screen between private terraces, 1.4m high tapering upto 1.8m high, metal frame with timber slats

Surface Finishes (S)

- S1 - Linear pavers laid stretcher bond, in light tone, colour TBC to suit architecture
- S2 - Linear pavers laid herring bone bond, in darker tone, colour TBC to suit architecture
- S3 - Tarmac Asphalt Surface with natural aggregate dressing
- S4 - Private terraces with pavers laid stretcher bond, in medium tone, colour TBC to suit architecture

Ecology enhancements (F)

- F1 - Swift nest boxes
- F2 - Bird nest boxes
- F3 - Hedgehog house
- F4 - Bee hotel
- F5 - Bat roost boxes

Checklist / policy

20. Make the green spaces multifunctional with both public and private green spaces that support seclusion and reflection, activity and interaction, and climate resilience:

The proposed green spaces across site include:

20.1 A significant proportion of existing and new tree canopy cover including mostly deciduous species that will provide shade and transpiration cooling in summer while letting daylight into the central spaces in winter, plus some evergreen species to provide year-round greenery and winter refuges for wildlife. (This also supports the aims of the Council's 'Cambridge Canopy Project')

20.2 A generous amount of soft landscaping to help manage heavier future autumn/winter rainfall with infiltration where possible, including 491m^2 of 'rain gardens' set into the ground with biodiverse planting

20.3 1160m^2 green roofs that support wildlife while keeping buildings cooler and slowing rainfall runoff.

20.4 275m^2 amenity lawn areas, with species-rich lawn mix to support insects and other invertebrates, and further 1530m^2 amenity planting

20.5 Food growing areas will also be planted with species that can feed both people and wildlife – such as berries, flowering herbs and small fruit trees.

20.6 Outdoor spaces also form a key element of the community vision for the scheme. In the central gardens, natural play features are included that to enable informal play whether while lingering or passing through ('play on the way'). These are consistent with Play England 'design for play' guidance (see Landscape Statement). A covered timber pavilion will provide a sheltered spot that enables people to enjoy the green space to nature in a variety of weather conditions.

20.7 93% of outdoor amenity spaces receive at least 2 hours of sunlight on 21st March, well exceeding the BRE guideline target of 50%.

21. Enhance contact with nature via site activation and detailed designs:

21.1 As a new green space in a nature-poor area, the site offers opportunities to host community events and experiential/informal educational features. One option being explored is to work with existing local gardening groups to activate the shared food growing space on site.

Ca.4
Ca.5
Ca.6

One Planet Living® Principle

5

Sustainable water

Using water efficiently, protecting local water resources and reducing flooding and drought

Policy and needs

Cambridge Local Plan Policies

- **Policy 28:** mains water use ≤110L/P/D (homes); full credits in BREEAM Wat 05 (non-residential)
- **Policy 31:** Manage surface water close to source; no discharge from site up to 5mm of rainfall; ensure quality of runoff as per SUDs manual; flat roofs should be green/brown; if possible, use ecosystem services, water recycling, permeable surfaces and multifunctional features that support placemaking
- **Policy 32:** maintain peak runoff rate and volume as per undeveloped site; ensure neither property or its neighbours flood in the 1-in-100-year event with possibility of local drainage system failure; include climate change projections; ensure discharge locations can handle surface and foul water from site; use surface water infiltration if possible (then to a water body, then to a surface water sewer and never to a foul sewer); include a maintenance plan
- **Policy 33:** show that there will be no impact of ground contamination on controlled waters
- **Policy 59:** Landscape design should help to manage surface water

Key identified needs and issues

- Water stressed area, worse with climate change – must reduce consumption, including leakage
- Protect aquifers beneath site
- Reduce flood risk and improve surface water runoff quality, including in a changing climate

Development objectives for Devonshire Gardens

22 **Minimise the mains water demand:** Achieve an efficiency of maximum 110 litres/person/day in homes, and explore scope to achieve a cap of 16L/P/D in commercial space (RIBA Climate Challenge)

23 **Drought-resilient green spaces:** Design planting for drought-tolerance where possible, and collect rainwater on site for use in green spaces

24 **Protect against flood risk, now and in the future:** recognising that climate change is likely to bring more intense winter rainfall in coming decades

25 **Steward the quality of precious water resources,** both on the surface and below ground

Checklist / policy

22. Minimise the site's water demand:

22.1 As per the requirements of Greater Cambridge Policy 28 and SPD checklist item Wat.01, the homes will have water-efficient fittings designed to achieve a water demand figure of no more than 110L/P/D.

22.2 In the commercial spaces, the proposal's BREEAM pre-assessment shows that the designs at this stage expect to achieve at least a 40% reduction in water use compared to the BREEAAM baseline, thus achieving 3 of 5 credits available in BREEAM Wat 01. A potential 4th credit may also be achieved.

22.2.a This falls short of Policy 28 standard of 5 credits, which would require a reduction of 55% on the BREEAM baseline. A 55% reduction would only be possible with extensive greywater recycling, the systems for which (at the size required) are currently thought to be prohibitively expensive and could have unacceptable impacts on space (for water storage) and energy use. However, the pre-assessment shows that it may be possible to achieve one further credit. The BREEAM scoring system would allow the savings from greywater to be acknowledged only after at least 4 credits are achieved through other means.

22.2.b Therefore, options for simple short-retention greywater reuse (reusing water from hand washing basins to flush toilets or urinals) have been identified and will be further explored in more detailed design stages. For homes, wastewater recycling has been specified and demonstrated to offset the total demand for WC flushing for each home, in accordance with Appendix A of Approved Document G.

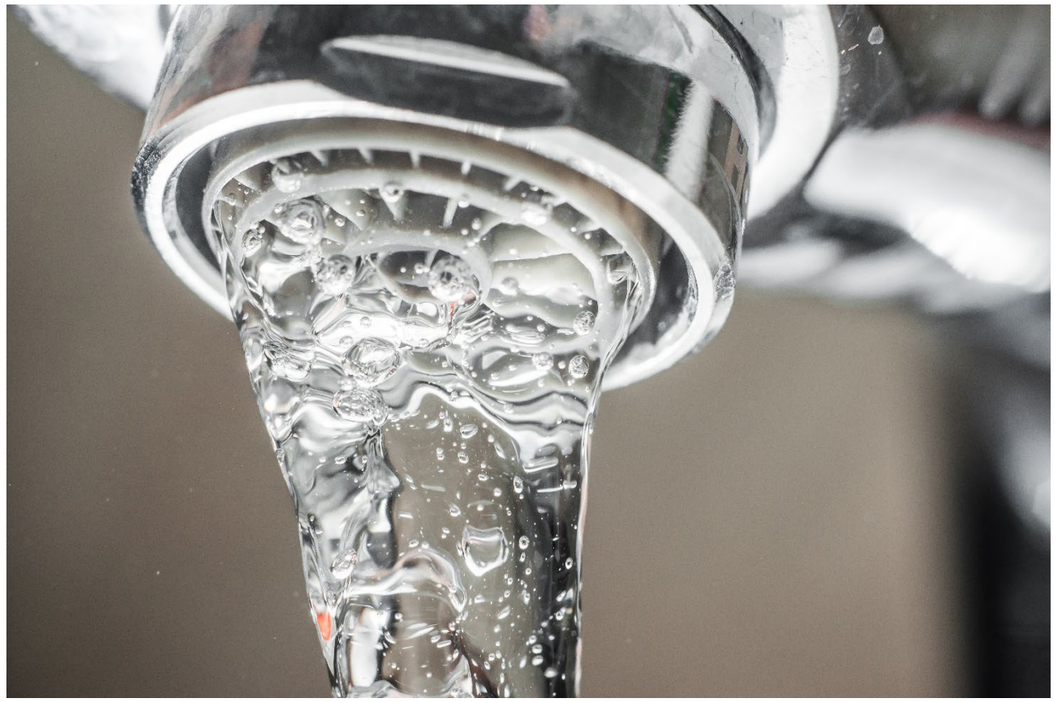
22.2.c The creche and other community spaces will be delivered as shell and core which means the developer does not specify the fittings, but water efficiency could be pursued through green leases. The utilities report (provided separately) shows these spaces' water connections will be metered, which promotes awareness/efficiency.

23. Create drought-resilient green spaces:

23.1 The indicative range of planting species includes consideration for tolerance to dry conditions, making it more climate-resilient (see Landscape Statement)

23.2 A blue roof of 400m^2 (between blocks A/B and B/C) will provide rainwater storage which could (at a later design stage) be detailed for use in irrigation of the green spaces to reduce mains water use. There is also an intent to include rainwater butts for use in the community food growing areas alongside the Chisholm Trail, but this too would be for a later stage of design.

Wat.1
Wat.2
Wat.3



Wat.3

Illustrative rain garden planting that is tolerant of wet or dry soils

Checklist / policy

24. Protect against current and future flood risk:

24.1 The site is in Flood Risk Zone 1 (low risk) with no other flood zones nearby, therefore the risk of flooding from rivers and the sea is very low. The site is not within an area having experienced flooding from groundwater. Groundwater flood risk is thought to be only a problem for basements (see below). No flood risk to site from other artificial sources (sewers, canals reservoirs) is identified.

24.2 The site's existing surfaces consist almost entirely of impermeable hardstanding. The development will improve this in that it removes this hardstanding and replaces it with a combination of soft landscaping and permeable paving, underneath which will be a combination of soil infiltration / geocellular soakaway tanks, and impermeable attenuation tanks that drain towards the soakaway. In addition the proposals include the following surface water drainage features:

- Blue roof areas of ~400m^2 will provide 50m^3 of rainwater storage, which could later be detailed for reuse for irrigation
- Green roof areas of ~1160m^2
- 491m^2 rain garden area will provide 64m^3 of rainwater attenuation while supporting biodiversity and amenity

24.3 This surface water drainage strategy allows all surface water runoff to be dealt with directly on site, and is designed to accommodate the 1-in-100 year rainfall event +40% climate change allowance. The relevant SuDS checklist and proforma will be attached to the Drainage Strategy Report submitted as a separate part of the application, unless confirmed by relevant officers that this is not required.

24.4 Thanks to the measures described, the FRA shows that the development will not increase fluvial or surface water flood risk at the site or to downstream receptors. A groundwater basement impact assessment has also been carried out to understand whether the small basement underneath Block B (for plant) might be at risk or increase risk elsewhere. This found that there is an existing low to moderate risk of groundwater flooding to basements in the area. This is including a climate change allowance of 0.5m groundwater level rise on top of the 1.5m winter level 'worst case scenario' based on recent borehole exploration. The risk to the basement itself will be managed using water-tight construction. Modelled water flows show that the basement does not increase groundwater flood risk elsewhere by displacement, because the volume is not large, the surrounding subsoil is permeable enough to let the water flow easily around it, and the existing identified basements are not in the path of the (imperceptibly larger) redirected groundwater flow.

SuDS.1
Pol.7

25. Steward the quality of precious water resources above and below ground:

25.1 The bedrock geology at the site comprises the Grey Chalk Subgroup rock unit which is characterised as a 'Highly Productive Principal aquifer', in addition to river terrace deposits that overly the chalk and are classified as a Secondary A Aquifer. However, the site is not within a groundwater source protection zone. Prior to commencement, a foundation works risk assessment would be carried out to assess risk from proposed piling and identify mitigation measures required to protect groundwater quality. The FWRA would be used to derive suitable piling methods and monitoring requirements to protect these aquifers from pollution during the construction process. This FWRA and accompanying remediation works are expected to be a condition prior to commencement. In operation, the surface water drainage strategy protects groundwater by ensuring that areas of the site with suspected legacy hydrocarbon contamination in the soil are served with impermeable attenuation tanks rather than direct soil infiltration. These will drain towards soakaway attenuation tanks in areas where the soil is clean.

25.2 The nearest surface water features are an unnamed watercourse circa 1.2 km west of the site, and Cherry Hinton Brook situated 1.25 km east of the site, both flowing north towards the River Cam. The site will avoid impacts on the water quality of these by containing all rainfall runoff within the site, as per FRA above. Roof runoff will be directed through SuDS features such as filter drains and/or rain gardens prior to soil infiltration.

Wat.3
Pol.7

6 Local & sustainable food

Promoting sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein

One Planet Living® Principle

Policy and needs

Cambridge Local Plan Policies

- **Spatial strategy:** Protect agricultural land (take pressure off this by using urban brownfield)
- **Policy 24 + 72:** Developments in Mill Road OA should contribute to its vitality, viability and character – which is noted to include independent restaurants, cafes and hot food takeaways – which are an appropriate district centre use, subject to amenity
- **Policy 67:** allotments are one of the kinds of open space that are protected
- **Policy 68:** Residential developments should contribute to open space as per the council's open space and recreation standards – this includes 0.4ha of allotments per 1,000 people). This provision should be made within the city and urban extensions, and can be fulfilled as a payment.

Key identified needs and issues

- Add to stock of urban food growing space
- Alleviate development pressure on region's farm land by making efficient use of urban brownfield
- Over-density of fast food outlets – increase access to healthy food that is convenient and attractive
- Diets are responsible for a high proportion of the ecological impact of Cambridge average lifestyle

Development objectives for Devonshire Gardens

26 **Accessible food growing:** the designs will aim to provide accessible and manageable food growing opportunities both private and shared/public

27 **Connect to and support local food networks:** Explore ways to make connections with existing organisations or networks that promote production and consumption of local, regional or redistributed food

28 **Promote access to healthy and sustainable food,** taking into account options for on-site food and beverage businesses, food delivery/storage, and use of community space

29 **Good quality food storage and kitchens:** Create exemplary food storage spaces and decent home kitchens with the aim of encouraging people to cook more and avoid food waste or spoiling

Actions to achieve development objectives

Checklist / policy

Osc.2
Policy 68

26. Accessible food growing: The proposed designs aim to provide accessible and manageable food growing opportunities both private and shared/public

26.1 While the site is too constrained to provide full allotments, it instead provides ~80m² of shared community food growing space. These will be in the form of raised beds and fruit/nut trees. Specific food-producing trees are denoted in pink shading on the landscape designs by LDA. It is thought that such spaces will be more manageable than full allotments, more accessible at short notice/without long waiting lists, and will also enable more close community interaction and cooperation than solo allotments would.

26.2 This growing space is situated on the sunniest façades as informed by the daylight/sunlight analysis to give the best chance of achieving good produce. This also happens to coincide with the façade to the proposed Chisholm Trail cycle route which is hoped to allow wider community awareness of the food growing space through word of mouth, as many people will pass by and see it.

26.3 The required amount of allotments, beyond what can be provided on site, will be provided through offsite contributions to be determined via Section 106 agreements.

27. Connect to and support local food networks / 28. Promote access to healthy and sustainable food:

Although many operational choices cannot be fixed before planning permission, initial intentions are as follows:

27/28.1 Explore potential for community spaces on site to accommodate initiatives that attack the problem of food waste and food poverty – such as a community kitchen and/or surplus redistribution hub (initial conversation with Cambridge Sustainable Food has taken place), or zero packaging groceries shop

27/28.2 Identify and explore ways to promote local community-supported agriculture schemes (local subscription veg boxes) to residents and workers on site

27/28.3 Socius and Bioregional have produced a separate "Statement of Intent on Sustainable Food" that gives more detail on these aspirations.

29. Good quality food storage and kitchens:

29.1 This is only an aspiration at this stage of design, as interiors are to be fixed later. However, the team intends to explore ways to provide homes that make it easy to receive, store and cook food well. This could include ambient and cold storage, worktops, and/or space to securely receive veg box deliveries.

One Planet Living® Principle

7

Travel & transport

Reducing the need to travel, encouraging walking, cycling and low carbon transport

Policy and needs

Cambridge Local Plan Policies

- **Policy 5,** Sustainable transport and infrastructure: promote greater foot/cycle priority, public realm + cycle parking improvements; help create a more joined-up foot + cycle network; support AQMA
- **Policy 14:** AOMCs and Opportunity Area proposals must come with the right infrastructure, and should be higher-density at district centres such as Mill Road OA
- **Policy 24:** Proposals in the Mill Road OA should restore balance between people and vehicles, emphasising placemaking over vehicle movement
- **Policy 80 + 81:** Show that access arrangements prioritise sustainable modes and that transport impacts will be acceptable; safeguard future public/cycle/footway routes
- **Policy 82:** Provide cycle parking spaces as per ratios in Local Plan Appendix L in relation to number of beds, commercial floor space, commercial staff, creche staff and visitors. Must provide 2 disabled car parking spaces (and can be otherwise car-free if this can be enforced)

Key identified needs and issues

- Supercharge existing active travel habit by making it safe, enjoyable, convenient
- Safeguard Chisholm Trail to unlock wider connectivity
- Enable and encourage switch away from cars
- Attract cross-regional journeys by public transport and zero-carbon vehicles

Development objectives for Devonshire Gardens

30 **Avoid induced car use:** The site will aim to refrain from 'inducing demand' for unnecessary car use, by making the site as car-free as possible without excluding those with disabilities and while enabling necessary car use to be undertaken with zero-emissions vehicles

31 **Supercharge safe, convenient active travel:** Make the site enjoyable and easy for cyclists and pedestrians to arrive at and traverse, and take operational measures to promote these modes along with public transport

32 **Low-impact deliveries and servicing:** Explore ways to minimise the impact of operational servicing and deliveries on climate, noise, air quality and amenity

33 **Minimise impact of construction traffic** on noise and air quality for neighbours

Checklist / policy

30. Avoid induced car use, and enable necessary trips to be made by zero-emissions modes:

30.1 The site is almost entirely car-free, with only 2 parking spaces, both reserved for disabled users and both provided with electric vehicle charging points of at least 7kW supply, (defined as 'standard' speed charging points). This is in line with Appendix L of the Cambridge Local Plan.

30.2 Additionally, 1 car club space will enable residents to make necessary car trips without needing to own and store a personal vehicle. This will be provided with a rapid EV charging point.

30.3 This is in line with the provisions of Policy 82 denoting that car-free or car-capped development is acceptable if:

30.3.a There is "good, easily walkable and cyclable access to a district centre" – this site is just 3 minutes' walk to Mill Road (which is a district centre) and just 5 – 15 minutes' walk to various schools

30.3.b There is "high public transport accessibility" - this site is 8 minutes' walk to Cambridge Railway Station, 16 minutes' walk to Drummer Street coach/bus station, and under 5 minutes' walk to bus stops on Mill Road

30.3.c "the car-free status can realistically be enforced by planning obligations and/or on-street parking controls" – This neighbourhood is already a Controlled Parking Zone (Tenison) and other off-street car parking areas are present nearby (Gywdir Street, Cambridge Railway Station and several Enterprise car clubs)

30.4 As a result, the redevelopment is expected to result in an **overall net decrease of nearly 360 vehicle movements per day** – see Transport Assessment paragraph 5.57. The Framework Travel Plan outlines targets for modal shift that include a reduction in driving modal share from 44% today to 5% by year 3 occupation, and 0% by year 5.

T.1
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Pol.16
Pol.18
Pol.19
Pol.20

31. Supercharge safe, convenient active travel: The development aims to make active travel the top choice, building on existing positive patterns in Cambridge and the inherently walkable/cyclable location, by the following means (all physical features to be in place by first occupation):

31.1 Safeguarding a 5m strip along the eastern boundary to allow for the Council's proposed cycle Chisholm Trail that will allow a car-free route segment for cyclists

31.2 Adding new paved permeability by foot and cycle between Devonshire Road and the proposed Chisholm Trail, and potentially to Angus Close in future (in comparison, currently the site has one entrance for vehicles, and has no through-permeability in any direction) and dramatically improving pedestrian access with a new 3m wide footway along the boundary to Devonshire Road by setting buildings back from the tree line

31.3 Replacing the existing 'speed cushion' on Devonshire Road with a raised table to provide cyclists (and other wheeled users) with easier access while also creating a larger traffic calming measure that adds to the character of Devonshire Road (in addition to a net decrease of nearly 360 vehicle movements/day, as above)

31.4 Making it attractive to walk through site by creating a green, beautiful and well-activated environment

31.5 Total cycle parking provision is 545 spaces (incl. 41% Sheffield stands overall), meeting or exceeding requirements of local plan Appendix L (20% Sheffield). ~10% of the total spaces are dedicated for casual outdoor visitor cycle parking spaces in the courtyard. For residents, 102 residential secure indoor cycle spaces, all Sheffield Stands, at ground floor. This includes 5% provision for larger cycles (e.g. cargo bikes) in each block.

31.6 Creating an indoor cycle hub for the offices directly adjacent to the Chisholm Trail with a total of 351 cycle spaces (with 5% provision for larger cargo cycles) (on ground floor) and a first-class end-of-journey facility including 16 showers of which 2 suitable for disabled users, and 160 lockers.

31.7 Minimising intrusion by service vehicles into the site, within the Council's requirement to not remove trees for parking bays – resulting in a very small service/ delivery vehicle turning circle that only crosses the footway once

31.8 Supporting the council's proposal for possible future closure of Devonshire Road to through-traffic by providing a financial contribution for the TRO process (which could alternatively be put towards delivery of the Chisholm Trail if the Devonshire Road Scheme does not come forward). For more detail, see Transport Assessment.

T.1
T.2
T.3
T.5
T.6

Checklist / policy

32. Low-impact deliveries and servicing:

32.1 The site provides access for service and delivery vehicles via two new access points with turning areas. The layout enables these vehicles to enter, turn and wait as needed. These vehicles' intrusion into site is minimised with very small service/ delivery vehicle turning circle that only crosses the footway once (see Transport Assessment and landscape design).

32.2 The proposals accommodate deliveries by cycle (such as Zedify and Click It Local) by drastically improving cycle access via Devonshire Road and the future Chisholm Trail, and providing extensive cycle parking as detailed under Outcome 31 (previous page).

32.3 The appointed site management company will be responsible for managing the access to site by service and delivery vehicles, including liaison with tenants. This would provide an opportunity for the Travel Plan Coordinator to encourage tenants to consider their options for consolidated deliveries and low-emissions vehicles for these purposes, as part of the general promotion of home/office deliveries as an alternative to personal car use that is already part of the Framework Travel Plan.

32.4 For refuse collection, homes fronting Devonshire Road can be serviced from the road. For blocks on the Eastern boundary, refuse vehicles can enter the site via the southern access point, travel along the Eastern boundary, and turn between blocks C and D (see Transport Assessment). The Outline Operational Waste Minimisation and Management Strategy details how this enables access by refuse collectors with acceptable drag distances from bin stores to vehicles.

32.5 Emergency vehicles, including fire, can access the site from Devonshire Road.

33. Minimise impact of construction traffic on noise and air quality in the neighbourhood:

33.1 Construction & demolition traffic flows generated by development will be estimated and their impact managed by a Construction Environmental Management Plan that would be provided by the applicant as a condition to approval of this application. There is a risk of dust track-out by vehicles during the entire construction and demolition period. This is to be managed by a range of measures including wet cleaning and wetting-down. Vehicles' own emissions will be also be managed by not allowing vehicle idling. See also Air Quality Assessment (submitted separately)

Pol.17

One Planet Living® Principle

8

Materials & products

Using materials from sustainable sources and promoting products which help people reduce consumption

Policy and needs

Cambridge Local Plan Policies

- **Policy 28:** demonstrate approach to use of materials (responsibly sourced, reused or reclaimed, reduced embodied impact, and reduced health impact)
- **Policy 56:** high quality materials contribute to successful places
- **Policy 57:** New buildings should be sustainably constructed and adaptable
- **Policy 59:** Landscape and public realm materials should be of a high quality and help create local distinctiveness

Key identified needs and issues

- Enable a switch to longer-lived, reusable and shared consumer products
- Construction industry must move towards reduced materials impact via specification and efficient design
- Materials can have positive or negative health impacts such as via VOC emissions and biophilia

Development objectives for Devonshire Gardens

34 **Healthy, durable and responsibly sourced materials:** Anticipated service life, VOC emissions and sourcing certifications should be a key part of specification

35 **Whole-life embodied carbon analysis to inform design, specification and potential offsetting:** this analysis should be commissioned early enough to inform the design process and choices, using RIBA or LETI benchmarks as targets for embodied carbon

36 **Aim to support the circular economy in use:** Exploring ways to promote the sharing and reuse of products through the use and activation of community spaces on site

Checklist / policy

34. Healthy, durable and responsibly sourced materials:

34.1 As part of the BREEAM Excellent rating sought for commercial buildings, the proposal is targeting 1/1 credit under Mat 03 (procurement plan and all timber responsibly sourced), and a further 1/3 credits available for having a proportion of responsibly sourced materials in the superstructure (with a possible +1 credit for other parts of the building at more detailed design stages). The development also targets 1/1 credits under Mat 05, (durability and resilience), 1/1 under Mat 06 (material efficiency) and 1/1 credit for Mat 02 (environmental product declarations). The life cycle embodied carbon analysis is also examining several structural options which include some that are more suitable for deconstruction and reuse (timber/steel) than others (reinforced concrete).

34.2 There is an aspiration to specify internal finishes that do not harm interior air quality, at later detailed design stages.

Osc.3
Osc.4
Cs.2

35. Whole-life embodied carbon analysis to inform design, specification and offsetting:

35.1 As part of the BREEAM Excellent rating sought for commercial buildings, the proposal is targeting 3/7 credits under Mat 01 (environmental impacts of construction products - LCA). Preliminary whole-life embodied carbon analyses have examined the elements of the commercial blocks and hard landscaping that have been fixed to RIBA stage 2 (i.e. it excludes fixtures, fittings and MEP services). A 2021 LCA of Blocks B and C shows an embodied carbon figure of 370 kgCO2e/m2. This is well below the LETI offices 'business as usual' benchmark (1000kg) and 2020 target (600kg) with a margin to allow for fixtures, fittings and MEP services, although the scope of LETI targets is somewhat different to a BREEAM LCA. A 2022 LCA shows the current Block D designs' embodied carbon is 664 $kgCO2_e/m^2$. To inform ongoing designs and material selection, the 2021 LCA presents several construction options, comparing their whole-life carbon impact. It found that a reinforced concrete frame would have lower embodied carbon than a steel and cross-laminated timber or steel and composite. This is due to high energy use and low recycled content in typical UK steel. If lower-carbon steel can be sourced (from electric arc furnaces or with high recycled content) then this could improve. The LCA also identifies options for improvement in detailed design, such as cement replacement, reduced glazing, and timber frame windows.

35.2 As well costs, the eventual material choices will be constrained by the insurance market (initial consultations suggest it is currently very hard to insure timber structural frames), and the need to dampen noise from rail and roads (in which a heavy concrete frame performs better than timber/steel – see noise control strategy). Some of the lower-carbon options such as timber need thicker walls, ceilings or floors in order to achieve the necessary strength, which affects height and internal space. Therefore the design is being twin-tracked to allow for several options as per the LCA, in the event that the insurance market improves and if it can be shown that the market would accept such spaces. The team has identified that the Block E creche (being low-rise and non-residential) is most likely to be able to use timber construction, therefore cross-laminated/glulam timber is to be pursued in further detailed design. A pre-app meeting (pre-app response 12/04/2022) confirmed that Cambridge Council officers support and welcome the potential for these creche construction options.

35.3 The information above is to be used to explore the feasibility and viability of offsetting the scheme's embodied carbon, also to be informed by further LCA insights for elements to be fixed in future design stages (e.g. facades, fit-out, M&E; possibly also the residential buildings). This will depend on the total cost of reliable offsetting, and consideration of whether this cost might be better put towards achieving reduced environmental impact directly on site.

Osc.1

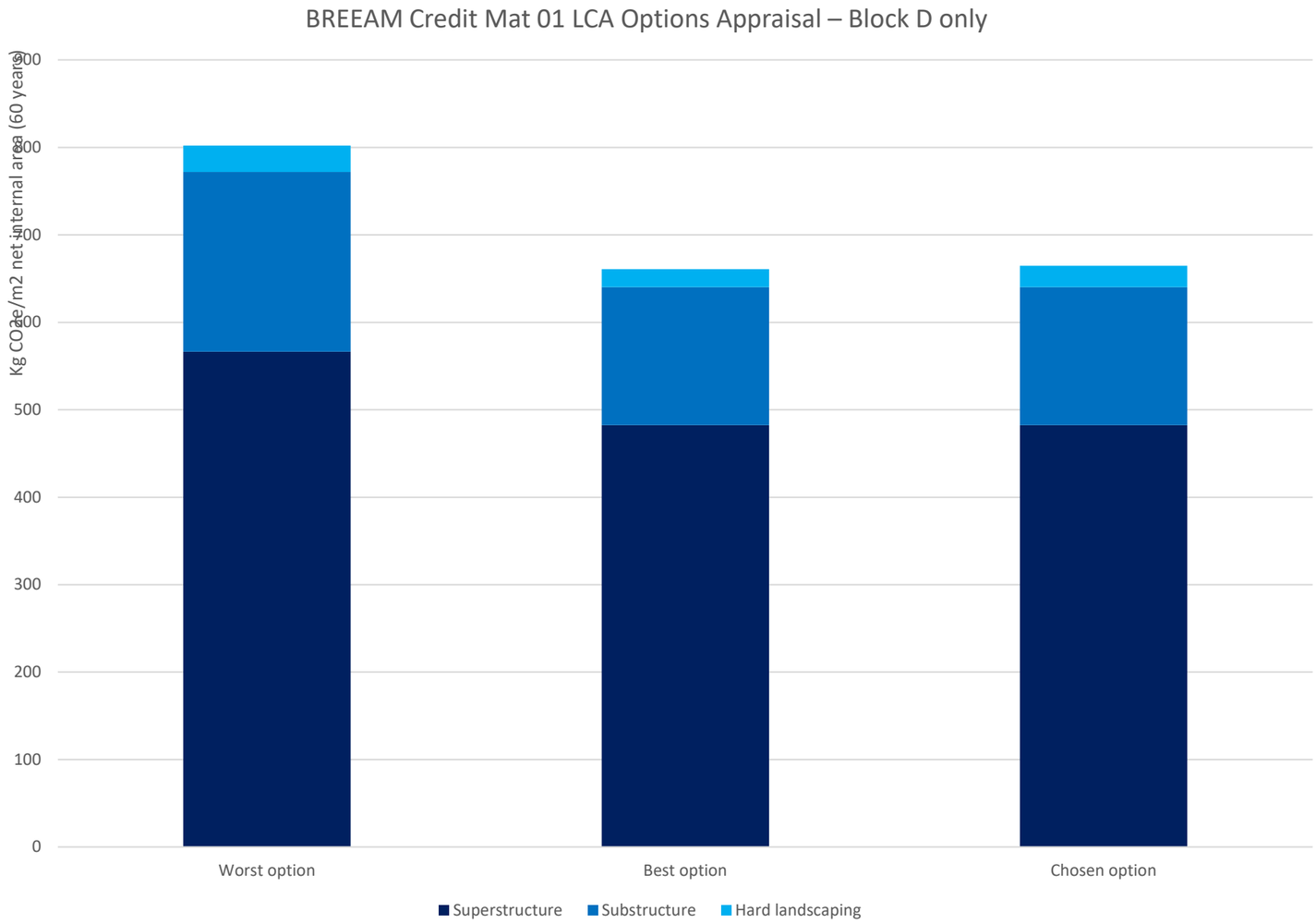
36. Aim to support the circular economy in use:

Although many operational choices cannot be fixed before planning permission, initial intentions are as follows:

36.1 Explore scope for community spaces on site to accommodate initiatives that address overconsumption of consumer goods, such as a Library of Things or repair café. This depends heavily on the availability of an operator with the right experience and commitment, to grow community engagement with the facilities.

36.2 The proposed car club is an example of circular economy whereby goods are shared rather than owned.

Actions to achieve materials and products objectives



Taken from BRE Mat 01 Results Submission Tool from the BREEAM NC 2018 assessment of office spaces at Devonshire Gardens (Ramboll, April 2022). The graph demonstrates that the best option in terms of embodied carbon has been chosen for the superstructure and substructure. Although the hard landscaping option chosen is not the option with the lowest embodied carbon, this represents a small part of the elements assessed for embodied carbon and is therefore not significant.

One Planet Living® Principle

9

Zero waste

Reducing consumption, re-using and recycling to achieve zero waste and zero pollution

Policy and needs

Cambridge Local Plan Policies

- **Policy 28:** demonstrate how the development is designed to reduce construction waste across its whole life cycle (including maximising reuse and recycling of elements) and how they are designed to enable occupants to separate waste and recycle, referring to RECAP and council guidance and checklists

Cambridgeshire and Peterborough Minerals & Waste Core Strategy 2011/12

- **Policy CS28:** Minimise waste and aim for reuse and resource recovery, evidenced by a waste management audit and strategy, completion of the RECAP design guide toolkit assessment, and contribution to provision of 'bring sites'

Key identified needs and issues

- Reduce total waste generation, especially of non-recyclables, and enable greater recycling separation rates – in order to take pressure off landfill and reduce loss of finite planetary resources
- Reduce generation of waste from construction and demolition

Development objectives for Devonshire Gardens

37 **Aim for 'circular' construction designs:** in the design process, aim for designs that can use recycled content and be deconstructed for material recovery rather than demolished and landfilled at end of life

38 **Aim to reuse demolition and excavation materials and minimise construction waste:** any site-won materials such as from the two warehouse and basement excavation to be reused on site if possible, or otherwise recycled to the maximum feasible proportion

39 **Enable simple, convenient operational waste separation:** Design-in simple and convenient spaces for residents, workers and other site users to separate waste from recyclables, store them and have them easily collected

Actions to achieve zero waste objectives

37. Aim for circular construction:

37.1 As part of the BREEAM Excellent rating sought for commercial buildings, the proposal is targeting 1/1 credits under Wst 06 (design for disassembly and adaptability, to enable reuse of elements at end of life) and 1/1 for Wst 04 (installing fit-out materials only in a display area or where agreed with tenant, to avoid immediate refurbishment).

37.2 The Life Cycle Assessment included some structural options that would be suitable for deconstruction and reuse (steel frame; floors of either timber or composite metal), but these were found to be higher-carbon than concrete.

37.3 One of the 'best practice' measures noted in the Outline Site Waste Management Plan (provided separately), to be sought in the eventual contractor's detailed SWMP, is consideration of different materials' end of life – so that elements can be designed for repair, modular replacement, recycling, and/or safe disposal (in that order).

38. Aim to reuse demolition and excavation materials and minimise construction waste

38.1 As part of the BREEAM Excellent rating, the proposal is targeting 4/5 credits under Wst 01 (construction waste management) requiring a pre-demolition audit and adherence to low waste generation per m^2 floor space. A further credit under Wst 01 may be achieved for diverting a certain proportion of non-hazardous waste from landfill.

38.2 An Outline Site Waste Management Plan has been produced, detailing the principles to which the final Site Waste Management Plan should adhere (the final SWMP would be produced by the construction contractor). It identifies a range of best-practice measures (based on WRAP guidance) that will be sought, including to: use prefabricated elements (ideally from a supplier that recycles its own offcuts), reuse crushed concrete as infill, avoid overpurchasing, specify no hazardous materials, set subcontractor target limits for offcut/surplus, and have on-site segregation of waste arisings with I.C.E. colour-coded skips. A range of anticipated materials and quantities expected to arise from demolition, set-up and construction has been identified, along with plausible options for their reuse, recycling and disposal. Landfill diversion 70-90% is expected to be achievable. For more detail, please see the Outline SWMP.

39. Enable simple, convenient operational waste separation:

39.1 As part of the BREEAM Excellent rating sought for commercial buildings, the proposal is targeting a mandatory 1/1 credits under Wst 03 (providing dedicated recycling storage for the anticipated volume).

39.2 The Outline Operational Waste Minimisation and Management Strategy includes the Council waste and RECAP checklists. Waste storage areas are sited in the core of each apartment building accessible by lift and stairs, so that residents need not transport waste very far. These are sized for fortnightly volumes with a split of 40% dry recycling, 20% compostable waste and 40% residual waste (home interiors will be provided with 30-40L bins for general waste and mixed recycling, plus a 5L bin for compost, with layouts to accommodate these). For non-residential areas, the storage split is 50:50 dry mixed recycling and general waste, but compost storage could be also accommodated if needed. See also Design & Access Statement section on refuse strategy (selected diagrams replicated here).

39.3 The layout enables access by refuse vehicles so that waste storage is within acceptable 'drag distance' from the vehicle route (5 of 7 drag distances under 14m; one of 22.5m, and one of 44m (see OOWMMS, and DAS).

Checklist / policy

Wr.3

Wr.1
Wr.2

One Planet Living® Principle

10

Zero carbon energy

Making buildings and manufacturing energy efficient and supplying all energy with renewables

Policy and needs

Cambridge Local Plan Policies

- **Policy 28:** Show how the development applies the energy hierarchy in the design process to achieve at least a 19% carbon reduction on Part L of building regulations in homes, and achieve BREEAM 'excellent' rating for non-residential spaces (requiring at least 4 credits under BREEAM Ene 01)
- **Policy 29:** Development that includes renewable and/or low carbon energy generation will be supported subject to the condition that adverse impacts on amenity, heritage and environment are minimised and/or outweighed by benefits
- **Policy 57:** New buildings should include features to reduce environmental impact (e.g. plant and renewables) and these should be architecturally integrated

Key identified needs and issues

- Urgent need to drastically improve thermal performance and of buildings, and transition away from gas heating
- Need to increase renewable electricity generation, as Cambridge uses a lot of electricity (especially in industry/commerce) and lags behind in PV installation and renewable generation

Development objectives for Devonshire Gardens

38 **Best-practice energy efficiency:** Aim for best-practice standards in space heat demand and total energy use intensity of buildings, taking guidance from LETI, RIBA Climate Challenge and the Committee on Climate Change.

39 **Zero fossil fuel use on site:** Develop an energy strategy that does not use gas or any other fossil fuels

40 **Net Zero Operational Carbon:** Ensure the site achieves a net zero carbon emissions balance from its operational energy use by the UKGBC definition, prioritising on-site measures and making up the remainder with off-site renewable energy supply.

Actions to achieve zero carbon energy objectives

Checklist / policy

38. Best practice energy efficiency:

38.1 The energy statement (submitted separately) shows homes will achieve a regulated carbon emissions reduction of 27.1% at the 'be lean' stage of the energy hierarchy, compared to a gas boiler baseline. This is achieved by specifying a highly insulated envelope and designing windows/glazing for a balance between passive solar heating, daylighting, and overheating risk. Proposed homes' U-values for walls, floors, roofs, windows and doors all match the government's indicative specification for the 2025 Future Homes Standard (except flat roofs – which still perform better than the current Part L standard). The proposed air tightness of 3m³/(h.m²) @50Pa is better than the Future Homes Standard of 5m³/(h.m²) @50Pa.

38.2 In commercial and creche spaces, U-values are equal to or better than the indicative uplifts to Part L for non-residential spaces. Proposed airtightness is 3m³/(h.m²) @50Pa, significantly better than the 2021 Part L uplift (8m³/(h.m²)) @50Pa. Good daylight levels are achieved by creating dual-aspect spaces, plus north-facing roof lights on Block C thanks to the sawtooth roof, reducing the need for artificial light.

38.3 Please note the graph shown here is residential only, because the energy strategy explains the commercial via BREEAM instead of via reductions on Part L.

39. Zero fossil fuel use on site:

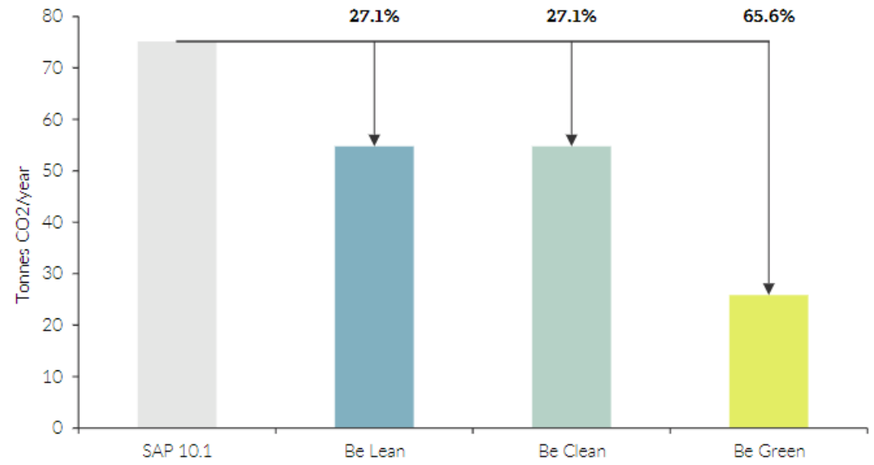
39.1 The energy strategy for the development is all-electric, using no combustion on site. Homes will have direct electric panel space heaters with zonal controls, and electric immersion with storage cylinder for hot water. The electrical grid is now lower-carbon per kWh than gas boilers, and will continue to decarbonise.

39.2 In commercial spaces, space heating and cooling will be provided by reversible air-source heat pumps. These are partially renewable as heat pumps harvest more kWh of renewable ambient heat from outdoor air than they use in kWh of electricity. Space heating for the creche will be radiant panel heaters. Hot water for the office showers will be pre-heated by the ASHP to 50˚C (80% of heat load), topped up with electric immersion heaters to the desired 60˚C. Hot water for hand washing (offices; creche) will be provided with instantaneous electric hot water vessels in each toilet core. Ventilation fit-out would be the tenant's responsibility.

39.3 The development proposes nearly 100m² of solar PV panels; 60m² on commercial blocks B and C; 40m² on the creche block E. These are integrated successfully in that they are placed so as not to be visible from streets, and in that the roof pitch of block C will maximise the output of the panels by orienting them south. The PV panels on Block C are integrated into the roof and will blend well with the proposed sheet metal roof. Other areas of roof have been identified that could accommodate PV panels, but the development must be sure to limit its peak solar generation to no more than its own concurrent power demand as we have been informed that there is no grid capacity for exports.

39.4 This strategy achieves a 65.6% reduction in residential regulated emissions against Part L using SAP 10.1 grid carbon emission factors. Office spaces and the creche will achieve 4 credits for BREEAM Ene 01 and the retail spaces will achieve 5 credits, thus meeting or exceeding the minimum requirement of 4 no. Ene 01 credits for BREEAM Excellent.

En.1
En.2



Summary of **residential** regulated carbon emissions savings at each stage of the energy hierarchy. Reproduced from Hoare Lea's energy and overheating strategy for the scheme.

40. Net Zero Operational Carbon by the UKGBC definition:

40.1 UKGBC allows that after energy use reductions and on-site renewables have been pursued as far as possible, off-site renewable energy can be used to reach net zero carbon so long as there is 'additionality'. While this cannot be fixed at this design stage and there will be constraints to controlling the energy supply as occupiers must legally be free to switch supplier, the owner-operator RailPen initially intends to 'bundle' utility bills with rent charges. This presents an opportunity to match the development's energy demand with renewables. RailPen has expressed an intent to at least source this energy via a renewable tariff (which would not be 'additional'), or ideally seek a power purchase agreement which would allow installation of new renewables by an energy supplier (which would meet UKGBC's 'additionality' requirement).

En.1
En.2
En.3

Checklist / policy

Policy 28

En.3

40.2 Under Policy 28 (Sustainable construction), the supporting text notes that “Developments within [the strategic district heating] area will be required to connect to existing or planned district heat networks”. This development does fall within this area, but Hoare Lea’s energy strategy notes that there is no existing or planned heat network here. The option of creating a CHP network for the development itself is rejected because of the impact it would have on air quality, and the fact that CHP is becoming far less competitive in terms of carbon emissions compared to the rapidly decarbonising electricity grid.

40.3 The scheme did explore the feasibility of an energy network in the form of a heat loop within the site to reuse heat rejected from commercial areas to provide heat to residential areas. However, analysis undertaken by Hoare Lea found that because of the seasonal difference between when heat is rejected from commercial areas and when it demanded in residences, across each year there would have only been a very small gain in energy savings which would not have justified the very large investment in plant, pipework and additional basement excavation.

Inapplicable items from SPD Checklist

SPD Checklist Items	Reason for inapplicability
Pol.4 – large scale flood lighting Pol.6 – illuminated advertisements	The development does not involve large-scale lighting such as pitch flood lighting. No illuminated advertisements are proposed in the scheme application.
Pol.29 – higher risk odour generating uses	No higher risk odour generating uses are proposed (such as a sewage works as per the example given in the SPD).
Ca.7 – ensuring that thermal mass elements of buildings are exposed if they are claimed to play a role in temperature control	Thermal mass is not currently part of the overheating risk strategy and therefore no demonstration has been made to show how it is kept exposed. The proposals do include options for concrete frames and slabs, so this could be explored at future detailed design stages.
Ha.1 – works to a heritage asset to address climate change Ha.2 – assessing and responding to an existing building's environmental performance Ha.3 – monitoring the impact of works to an existing building's historic fabric Ha.4 – potential remediation of impact of works on existing heritage building Cs.1 – bespoke sustainable construction standards for work to existing buildings	No existing buildings are to be retained as part of the proposal. The existing warehouses are not thought to carry any heritage value and both are to be removed. An archaeological desk based assessment by RPS Group found that there are no designated World Heritage Sites, Scheduled Monuments, Historic Battlefield sites or Historic Wreck sites lie within the vicinity of the site, and that the site in previous decades has already been subject to widespread, severe below-ground disturbance as a result of construction of the railway and associated buildings/sidings and later clearance in the late 20th century to create the existing goods yard. As a result, there is only a very limited potential that further heritage/archaeological assets could be found on site.

Appendix 1: Summary Greater Cambridge Sustainability Checklist

Code	Item	Status	See page
T.1	Have you demonstrated that the development is in the most suitable location for access by public transport, walking and cycling, reducing the need to travel by private car?	✓	35
T.2	Have you demonstrated how the development proposals give priority for walking and cycling over cars, linking the development with the surrounding walking and cycling network including planned projects?	✓	17; 35
T.3	Will the proposed walking and cycling provision be in place by first occupation of the development so that sustainable travel patterns can be established at an early stage?	✓	35
T.4	Where car parking is provided, has provision been made for electric vehicle charging?	✓	17; 35
T.5	Have any 'softer' measures been included, to encourage uptake of more sustainable modes of transport?	✓	17; 36
T.6	Does the development inhibit the expansion of high quality public transport/cycling and walking routes?	✓ No inhibition of these; active contribution to improve them	17; 35
En.1	For residential schemes have you followed the energy hierarchy in order to achieve the 19% reduction on Part L 2013 requirement set out in policy 28?	✓ 65.6% reduction in carbon emissions over Part L 2013 baseline	44
En.2	For non-residential development, have you carried out a BREEAM pre-assessment and met the mandatory energy requirements for BREEAM 'excellent' within Ene 01?	✓ All non-residential spaces comply – Targeting 4 credits in Ene 01 'reduction of carbon emissions' section, plus 2 further potential credits identified (BREEAM Excellent requires 4 of these credits).	42
En.3	How will you ensure that where renewable/low carbon technologies have been included in the approach to meeting the above carbon reduction requirements, these will be successfully integrated into the design of the development?	✓	42
Wat.1	For residential development have you prepared a Sustainability Statement setting out how your proposal will meet the requirement for potable water use of no more than 110 litres/person/day?	✓	31
Wat.2	For non-residential development have you included information to demonstrate that your proposal will be able to meet the requirement for achievement of 5 credits from Wat01 of the BREEAM assessment?	✖ 3 credits are targeted for Wat 01; potential for 4th credit	30
Wat.3	Have you given consideration to water re-use as part of the sustainable drainage strategy for the site as part of an integrated approach to water management?	✓ Consideration given; potential identified for future detailed design	30

Appendix 1 continued

Code	Item	Status	See page
Ca.1	Have you integrated measures to design out the risk of overheating, giving priority to architectural approaches in line with the cooling hierarchy?	✓	16
Ca.2	Have you undertaken overheating analysis following the CIBSE methodology and utilising future climate scenarios?	✓	16
Ca.3	Have you considered the role of green infrastructure and cool materials in enhancing the adaptive capacity of your proposal?	✓	16
Ca.4	Where your proposal has flat roofs, have these been designed as green or brown roofs in line with the requirements of policy 31?	✓	16
Ca.5	Where there are existing trees on your site, including ancient and veteran trees, how has the retention of these trees informed the layout of your development?	✓	25, 26
Ca.6	How have you integrated the planting of new trees into your proposals, giving consideration to the right tree in the right place principle?	✓	25, 26, 27
Ca.7	Where you are proposing to utilise thermal mass to help regulate internal temperatures, has this thermal mass been designed to be exposed and what is the strategy to enable night purge ventilation?	N/A – not proposed at this stage of design	
Bio.1	Has a Preliminary Ecological Assessment and Protected Species Scoping Survey been conducted, with sufficient detail given the nature and size of the site and the proposed development?	✓	25
Bio.2	If a protected or priority species and/or habitats have been identified, has a specialist been engaged to conduct a detailed survey?	✓ None identified	25
Bio.3	Has/will all the relevant information from these surveys been provided?	✓	25
Bio.4	Has the Mitigation hierarchy been followed, demonstrating how existing habitats and species have been protected in the proposed ecological and landscape strategy?	✓	26
Bio.5	Has the mitigation hierarchy been followed, demonstrating how any potentially adverse effects have been mitigated?	✓	26
Bio.7	Has it been demonstrated that the proposals will deliver biodiversity net gain, with use of the DEFRA Biodiversity Offsetting metric?	✓	26
Bio.8	For major development, has the Natural Cambridgeshire Local Nature Partnership (LNP) Developing with Nature Toolkit been adopted?	✓	26
Bio.9	Has a suitable biodiversity management and monitoring strategy for the site been proposed?	To happen at future design stage for credits targeted in BREEAM LE04.	27

Appendix 1 continued

Code	Item	Status	See page
Bio.10	For development likely to affect a European site, what information have you provided to enable the local planning authority, as Competent Authority under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) to record its decision with regard to likely significant effect, including undertaking Appropriate Assessment where necessary?	N/A	25
Pol.1	For all development with artificial lighting has a statement of the need for lighting been submitted and have the principles of an external lighting strategy that meets the requirements of the local plan policy/SPD been set out?	✓	18
Pol.2	Will the final detailed external lighting design / scheme be in accordance with the guidance and principles set out in the light pollution section of the SPD?	✓	18
Pol.3	Has the development taken measures to reduce light pollution impacts on character, residential amenity and biodiversity?	✓	18
Pol.4	For substantive large-scale lighting installations such as the floodlighting of external recreational and sporting facilities/pitches or transport interchanges has a detailed lighting assessment been undertaken by a qualified Lighting Engineer or lighting company in accordance with Section 3.6.24 of the SPD?	N/A None proposed	-
Pol.5	For Environmental Impact Assessment (EIA) development has a lighting impact assessment been undertaken having regard to and in accordance with the Institute of Lighting Professionals 'PLG04 - Guidance on Undertaking Environmental Lighting Impact Assessments'?	N/A – no EIA required	18
Pol.6	For any proposal for the display of illuminated advertisements has the relevant information been provided?	N/A None proposed	-
Pol.7	Is the development site's land use history known? Is the site potentially affected by land contamination (including ground water contamination) that could result in unacceptable risks e.g. a previous potentially contaminative industrial or similar use on site or ground gases? If yes, as a minimum, has a land contamination desk top study with risk assessment and site walk-over been undertaken and included with the application?	✓	18
Pol.8	For major Noise Sensitive Development (NSD) located in a noisy environment or near to a specific existing noise generating source e.g. near to a busy road, railway line, noisy commercial/industrial premises including building services plant/equipment has an appropriate acoustic assessment /report been undertaken in accordance with the noise assessment process and submission requirements set out in the noise section of the SPD?	✓	17
Pol.9	For Noise Generating Development (NGD) such as industrial commercial/trade or business premises and uses including plant and equipment has an appropriate acoustic assessment/report been undertaken in accordance with the noise assessment process and submission requirements set out in the noise section of the SPD?	✓	17
Pol.10	Has an 'Acoustic Design Statement' been included demonstrating that the principles of good acoustic design and noise mitigation will be followed for both NSD and NGD?	✓	17
Pol.11	Has the development taken measures to reduce existing noise and enhance the existing soundscape of the site?	✓	17

Appendix 1 continued

Code	Item	Status	See page
Pol.12	For all development has the impact of demolition construction noise/vibration been assessed and mitigation proposed?	To be dealt with by a CEMP to be provided by the applicant as a condition to approval of this application	-
Pol.13	For substantial development or infrastructure projects has a Noise and Vibration Demolition and Construction Environmental Management Plan been provided?		-
Pol.14	If the proposals are likely to generate a significant amount of traffic (defined as road traffic movements greater than 5% of Annual Average Daily Traffic) has a noise impact assessment of any increase in local traffic noise been undertaken?	N/A – the development will reduce traffic	35
Pol.15	Will the development require an Environmental Impact Assessment?	✓ No EIA is required	18
Pol.16	Will the proposals interfere with the Air Quality actions stated in the Local Transport Plan or Local Air Quality Action Plan?	✓ Not expected to interfere with these	17, 35, 36
Pol.17	Is the development part of a large scale major redevelopment that might result in long-term construction generating HGV flows more than 100 movements per day and/or demolition and construction dust?	To be dealt with by a CEMP, as per Pol.12/13	-
Pol.18	Will the development significantly alter the road or rail network?	✓ No significant alterations to network	18
Pol.19	Will the development significantly alter flows or speeds on busy roads greater than 10,000 vehicles per day or any road within an AQMA?	✓ The development will reduce traffic	35
Pol.20	Does the development provide more than 50 new parking spaces or more than 25 if it is within an existing AQMA?	✓ Only 2 – 3 parking spaces proposed	17, 35
Pol.21	Does the development have an underground car park with extraction system where the ventilation extract for the car park will be within 20 m of a relevant receptor and coupled with the car park having more than 100 movements per day?	N/A – no underground parking proposed	18
Pol.22	Is the development within an AQMA and a sensitive development (Residential, school, healthcare, childcare etc.)?	✓ Yes; commentary given; AQA provided.	17, 18
Pol.23	For commercial development, does the development include a prescribed industrial process under the PPC regulations?	✓ Not in current proposed uses, although E-class space is flexible to future change of use	18
Pol.24	Is the development a sensitive development close to an existing prescribed process or other source of air pollution, such as a busy road?	✓ Yes; commentary given; AQA provided. The development is likely to improve air quality by reducing traffic flows.	17, 18
Pol.25	May the development create a street canyon or reduce dispersion of pollutants?	✓ Not expected to cause this; AQA provided	18

Appendix 1 continued

Code	Item	Status	See page
Pol.26	Does the energy strategy for your proposal introduce Combined Heat and Power (CHP) plant, other centralised boilers, or generators? Do these conform with the emissions standards set out in Appendix 3 of this SPD?	✓ Not proposed	17, 42
Pol.27	For all industrial, commercial or business uses that generate odours or if substantial ventilation or extraction equipment is proposed has an overarching outline ventilation statement/strategy been provided?	N/A No such odour generating uses proposed. Centralised air handling plant will be installed in the commercial blocks and some rooftop space is left available for tenant-specified plant.	18; see also noise control strategy + AQA
Pol.28	For low to medium odour risk generating developments such as hot food premises/commercial kitchens has an appropriate odour risk assessment been undertaken including the provision of the information requested in paragraphs 3.6.193 – 3.6.196 of the SPD?		
Pol.29	For higher risk odour generating uses, such as a new sewage treatment works or when odour sensitive uses are proposed near such uses, has a detailed odour assessment been undertaken in accordance with the Institute of Air Quality Management document 'Guidance on the assessment of odour for planning (IAQM, Version 1.1 - July 2018)'?	N/A No such uses proposed	18
SuDS.1	Have you completed the pre-application Checklist (Appendix E) and Surface Water Drainage Pro-forma (Appendix F) of the Cambridgeshire Flood and Water SPD?	✓	31
Cs.1	If your proposal involves the re-use/re-development of existing buildings, have you developed a bespoke approach to sustainable construction standards and what form does this bespoke approach take?	N/A no buildings retained	
Cs.2	Where BREEAM has been used, has a BREEAM pre-assessment been prepared for submission with your planning application?	✓	14
Ha.1	Where works to a heritage asset to address climate change are proposed, have you undertaken studies to ensure that your proposals are based on a thorough understanding of the building's historic evolution and construction (where these matters relate to the heritage significance of the asset), architectural and historic significance?	N/A No heritage buildings present	-
Ha.2	Have you undertaken an assessment of the building's existing environmental performance, and how have your proposals been informed by this work?	N/A no heritage buildings present; no buildings retained	-
Ha.3	Have you developed a building monitoring and management strategy in order to assess the ongoing impact of the implemented measures on the asset's historic fabric?	N/A no heritage buildings present; no buildings retained	-
Ha.4	How have you factored in the potential for remediation works should ongoing monitoring identify that measures are leading to harm to the heritage asset?	N/A no heritage buildings present; no buildings retained	-

Appendix 1 continued

Code	Item	Status	See page
Wr.1	Has the size and location of recycling and waste facilities, both for storage and collection, been factored into the design of the proposals using the requirements set out in the RECAP Waste Management Design Guide SPD and associated Toolkit?	✓	40
Wr.2	Have you completed Cambridge City Council's Waste and recycling checklist for developers?	✓	40
Wr.3	Have measures been put in place to • Reduce the amount of construction waste generated by the proposals, including the use of single-use plastics where alternative options exist; and • Re-use and recycle remaining construction waste (Non-residential schemes should refer to the BREEAM assessment)?	✓	40
Osc.1	Has a target been set for improving the environmental impact of materials used in constructing the development, with consideration given to the embodied carbon of materials? Non-residential schemes should refer to the BREEAM assessment	✓	37, 38
Osc.2	Has consideration been given to providing food growing opportunities as part of the development, in the form of a private amenity space of the appropriate size and aspect? Have long term management and maintenance arrangements been considered in the design of these spaces?	✓ Provision: yes. Management: in development; partnerships being explored.	33
Osc.3	Have measures been integrated into the design to create healthy indoor environments, given consideration to issues such as daylight, ventilation and humidity control and the use of materials with low toxicity?	✓ Yes for the measures that can be specified at this stage of design (ventilation; daylight). Interior materials to be specified detailed design stage.	16, 17, 38
Osc.4	For non-residential development, has consideration been given to creating a healthy indoor working environment, giving consideration to elements such as biophilic design?	✓ Yes for the measures that can be specified at this stage of design (ventilation; views onto green space). Interior materials to be specified at detailed design stage.	16, 17, 38
Osc.5	Has consideration been given to the role of smart technologies in the design of your proposals, giving consideration to the role that such technologies could play in both the construction and operational phases of the development?	✓ To an extent. The life cycle carbon analysis uses 'OneClick LCA' software by Bionova Ltd. The development will achieve a platinum WiredScore, evidencing excellent digital connectivity. The scheme would also be suitable for micromobility schemes in that it is suitable for all cycling.	17, 20, 35, 36
Osc.6	Have you considered measures to enable residents/building owners to more easily retrofit their property in the future e.g. low temperature heating systems or 'stage 1 fit' pipework for rainwater harvesting?	✓ To some extent. Commercial buildings to have space heating and domestic water pre-heating by heat pump. The integral blue roof (link between blocks B-C) could be connectable for gravity-fed rainwater reuse at detailed design.	

Bioregional
Development Group

BedZED Centre, 24
Helios Road,
Wallington, London
SM6 7BZ

+44 (0)20 8404 4880

info@bioregional.com
bioregional.com
@Bioregional

Bioregional champions a better, more sustainable way to live.

We work with partners to create places which enable people to live, work and do business within the natural limits of the planet. We call this One Planet Living.

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Authors:
Marina Goodyear, Project Manager
Hugh Bonner, Project Officer
James Sheldon, Sr. Project Manager
Lucy Victor, Project Manager
Checked and approved by:
Lewis Knight, Programme Manager